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REPORT 342

CANDIDATE U.S. CIVIL DEFENSE PROGRAMS

Technical Report

March 1978

Roger J. Sullivan
Winder M. Heller
E. C. Aldridge, Jr.

Approved for public release; distribution unlimited

Prepared for
Defense Civil Preparedness Agency
Washington, D.C. 20301
Contract No. DCPA01-77-C-0219
Work Unit 4222C

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MEMORANDUM TO: Recipients of SPC Report 342

FROM: Roger Sullivan, Winder Heller and E. C. Aldridge, Jr.

SUBJECT: Errata

Could you please make the following pen-and-ink corrections to your copy of the report.

1. Page 11, last line in Posture 3: Replace (5,2,500) with (5,2,50).

2. Page C-6, line 12: Replace evaluation with evacuation.
 line 26: Replace $200 M with $220 M.

3. Page C-7, line 8: Replace ($5 M) with ($5 M for CHAT, included in $50 M total).

4. Page C-9, line 27: Replace 43 M with 25 M.

5. Page C-10, line 4: Replace 28 M with 20 M.

6. Page C-11, line 14: Replace $53,500 with $52,500.

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(9) Technical Report

(11) March 1978 (12) 91 p.

(10) By
Roger J. Sullivan
Winder M. Heller
E. C. Aldridge, Jr.

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DCPA Review Notice

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SUMMARY

In August 1977, System Planning Corporation (SPC) was selected by the Defense Civil Preparedness Agency (DCPA) under Contract DCPA01-77-C-0219, to support analyses of U.S. Civil Defense (CD) options. The purpose of the effort was to evaluate U.S. CD programs which could, by the mid-1980s, place the U.S. in a position to "surge" (in one to two weeks) to a posture in which one would have confidence that at least 1/2 to 2/3 of the U.S. population would survive a large-scale nuclear attack. Issues to be specifically considered were feasibility, credibility (or confidence), public acceptance, and costs.

As part of its study, SPC hosted and chaired three two-day workshops, at which over 50 authorities from many disciplines and from all parts of the U.S. met to discuss the various aspects and implications of CD.

This report analyses the candidate U.S. civil defense programs, assuming a mid-1980s Soviet attack versus counterforce and countervalue targets. Six specific programs, and two options to these programs, were identified. Estimates were made of numbers of survivors and program costs.

ABSTRACT

This report documents the results of an analysis of candidate U.S. civil defense programs, assuming a mid-1980s Soviet attack versus counterforce and countervalue targets. Six specific programs, and two options to these programs, were identified. Estimates were made of numbers of survivors and program costs.

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I. EXECUTIVE SUMMARY

A. BACKGROUND AND PURPOSE

In August 1977, System Planning Corporation (SPC) was selected by the Defense Civil Preparedness Agency (DCPA) under Contract DCPA01-77-C-0219, to support analyses of U.S. Civil Defense (CD) options. The purpose of the effort was to evaluate U.S. CD programs which could, by the mid-1980s, place the U.S. in a position to "surge" (in one to two weeks) to a posture in which one would have confidence that at least 1/2 to 2/3 of the U.S. population would survive a large-scale nuclear attack. Issues to be specifically considered were feasibility, credibility (or confidence), public acceptance, and costs. This report documents the final results of the SPC study.

As part of its study, SPC hosted and chaired three two-day workshops, at which over 50 authorities from many disciplines and from all parts of the U.S. met to discuss the various aspects and implications of CD.

A list of these participants is given in Appendix A. System Planning Corporation gratefully acknowledges the many valuable contributions made by the attendees. However, SPC assumes responsibility for the contents of this report.

B. RESULTS

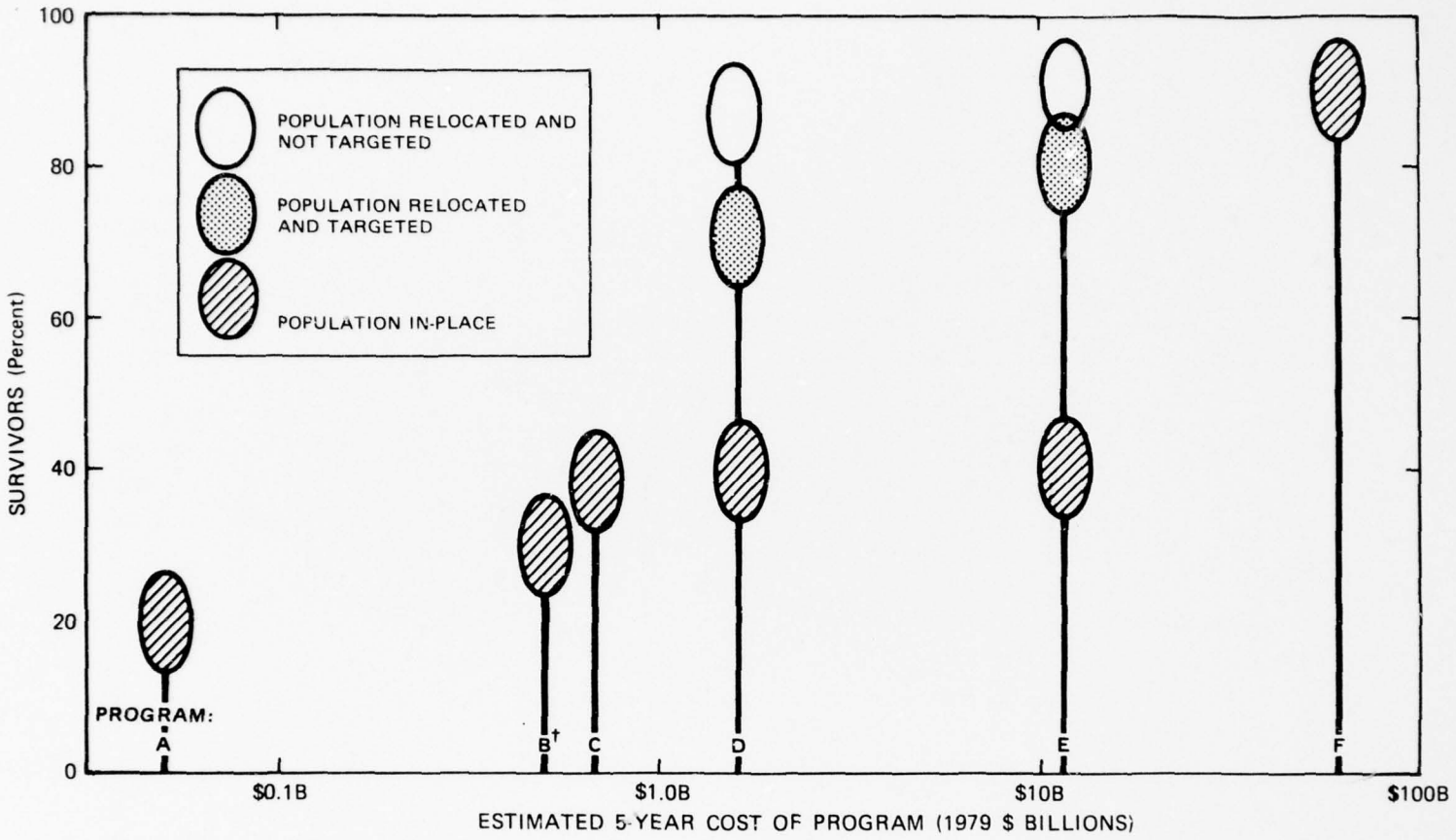
Two attack scenarios were developed to test the effectiveness of candidate CD programs against a mid-1980s Soviet attack. In both scenarios, U.S. military and industrial facilities were assumed to be targeted. Furthermore, under the first scenario, population residential areas were targeted; under the second, the population was assumed to have been relocated (evacuated) and the relocated population was targeted assuming that the Soviets had complete knowledge of U.S. relocation plans.

Six specific candidate CD programs were identified. For each, costs were estimated, and population survival was calculated, according to the best available means known to the authors. Program A is essentially a "no CD" program. Program B is essentially the current program. Program C provides for the in-place population to make best use of existing shelter spaces. Under any of these programs, fatalities from a large-scale mid-1980s counterforce/countervalue attack[1] would be about 60-80 percent of the U.S. population. For an extensive blast shelter program (such as Program F, which provides protection levels of 100 psi and PF 500), fatalities would drop to only about 10 percent. Programs that involve crisis relocation can provide high population survivability. Under Program D, the risk area population would be relocated to farms and hamlets and would be given some fallout protection. Under Program E, the risk area population would be relocated to a lesser extent but would be provided 15-psi blast protection. Under either of these relocation measures, fatalities are estimated as about 10 percent, assuming that the relocated population is not targeted, and 20-30 percent assuming that it is targeted. The results of analyses of costs and effectiveness of the candidate CD programs are summarized in Figure 1.

Two additional options to these programs were also considered. Option 1 would improve, over the long term, the in-place shelter posture of the U.S. by incorporating "slanting" design techniques into new construction. This means that any new construction would be required by law to have blast and fallout shelter spaces. Option 2 consists of preparing contingency plans for a one-year intensive buildup of CD capabilities. The primary feature of this buildup would be the procurement during the year of materiel required for crisis construction of expedient shelters (15 psi/100 PF).

Assuming that a crisis surge period is available and the necessary funds are provided, all of these potential programs are considered to be technically feasible. Moreover, it was the general opinion of the

[1] For CD programs C, D, or E, fatalities from a counterforce attack, versus strategic military targets only, would be less than 5 percent of the U.S. population [Refs. 1 and 2].



† PRESENT PROGRAM

FIGURE 1. COMPARISON OF EFFECTIVENESS AND COST OF CD PROGRAMS (Large-Scale Mid-1980s Soviet Attack Versus U.S. Military and Industrial Facilities, and Population)

social-scientist members of the workshops that the American public would cooperate overwhelmingly with CD officials in a serious crisis, even including the carrying out of crisis relocation (this opinion is based in part on experience in evacuations from natural disasters). The social scientists also concluded, among other things, that clear, authoritative information must be continuously provided to the public during a serious crisis, particularly during crisis relocation; and that a credible crisis relocation program also calls for a credible in-place CD capability, in case a crisis reaches an undesirable climax before crisis relocation can begin.

C. CONCLUSION

Adequate civil defense can definitely reduce the vulnerability of the U.S. population to a counterforce/countervalue nuclear attack. Based on Figure 1 and on the analysis described in the remainder of this report, Program D appears to provide the most effective option for saving at least 1/2 to 2/3 of the American people, given at least a one-week surge period, within a reasonable funding constraint of about three times the present U.S. level of expenditure for civil defense.

II. BACKGROUND

A. CURRENT U.S. CIVIL DEFENSE PROGRAM

The current U.S. CD program[1] relies on buildup over a year or more during a period of increased tension. For protecting the population in place (at or near their residences), required additions to the current program would include stocking 120 million shelter spaces with food and water; marking 95,000 buildings with shelter signs; training over 500,000 Shelter Managers, 10,000 Radiological Defense Officers, and 1.2 million Radiological Monitors; developing local government readiness to conduct emergency operations; and training the public for survival actions. Such actions would require at least a year of intensive effort.

The most significant initiative in the mid-1970s was development of a program for crisis relocation (evacuation) planning. Such plans are to provide an option to National Command Authorities to evacuate the bulk of the 135 million persons living in U.S. metropolitan areas, or near potential military targets, to surrounding lower-risk host areas, should time and circumstances permit during an intense crisis. Planning was started in most states during FY 1977. Crisis relocation has been regarded as an option to complement plans and capabilities for in-place protection, on the basis that a timely decision might not be made to evacuate U.S. cities; or if the decision were made, there might not be enough time to permit full evacuation.

[1] In FY 1962, a large supplemental appropriation for CD ($207 million) was submitted and was enacted without reduction. This included a large proportion of no-year monies, so that the funds were in fact expended over several years in the earlier sixties. In terms of 1977 dollars, the average expenditure in FY 1962 through FY 1967 was about $290 million annually, as compared to the FY 1977 appropriation of $82.5 million--about 28 percent of the 1962-67 average level.

B. EXAMPLES OF PREVIOUS RELEVANT ANALYSES

A number of previous relevant analyses have been performed. Two examples are the PONAST II study (1972) and Boeing analyses (1977). PONAST II [Ref. 3] is a study of the survival and recovery prospects of the U.S. and the U.S.S.R. following a hypothetical massive nuclear attack on the U.S. by the U.S.S.R., in turn quickly followed by a U.S. counterattack. The assumed magnitude of the attack and counterattack was what reasonably might have been expected if a war actually had occurred in early 1971. The study showed that although damage was awesome, both sides would survive and be capable of recovery.

Recent CD analyses at Boeing Corporation [Ref. 4] conclude the following:

- For a U.S. preemptive attack and a Soviet retaliation against U.S. industry (using all surviving Soviet strategic weapons), assuming no evacuation, fatalities could be as high as 70 percent of the U.S. population. With full evacuation, fatalities could be as high as 13 percent.
- For a Soviet retaliation against U.S. population (using all surviving Soviet strategic weapons) designed to maximize fatalities by maximizing fallout, and assuming no evacuation, fatalities would be 70-75 percent. Assuming full evacuation but no shelters in the evacuation areas, fatalities would be about 30 percent. Assuming full evacuation and expedient shelters in rural areas, fatalities would be about 13 percent.

III. CIVIL DEFENSE POSTURES

A distinction is drawn between a CD "posture" and a CD "program." A CD posture specifies, for each subdivision within CONUS, the number of people and the degrees of blast and fallout shelter protection of subelements of this population, versus time during and after an attack. A CD program is a potential series of policy decisions which could be made by the U.S. government resulting in the capability to place the U.S. population approximately into a given CD posture should attack warning be given. The present chapter is concerned with postures; the following chapter will concentrate on programs.

Since the central focus of this study was to look at alternative CD postures and programs that would enhance population survivability, a number of related issues were not discussed. These include the strategic implications of civil defense, organizational alternatives for civil defense, Soviet civil defense, and industrial protection to enhance post-attack recovery.

A. BRIEF DESCRIPTION OF CD POSTURES CHOSEN FOR ANALYSIS

Five specific CD postures were chosen for detailed analysis. They were developed in consultation with political, social, and physical scientists, and specialists in civil defense matters. Posture 1 represents the case of "no CD" and was included primarily to provide a reference point for the effectiveness of the other postures. In Posture 2, the population is assumed to remain in place but to make best use of presently available shelter as specified by the National Shelter Survey conducted by DCPA; these shelters are taken as being ready for occupancy by the time the attack occurs. Posture 3 is one where the population is relocated to farms and

hamlets, and is provided some fallout protection. Posture 4 corresponds to a less extensive relocation along with some blast shelters (15 psi) in the host areas. Posture 5 represents extensive in-place protection: 100-psi blast shelters in all populated areas. A more detailed description of these Postures is given in Table 1.

B. CONSIDERATIONS CONCERNING THE "SURGE" PERIOD

In defining and analyzing the CD postures and programs, it was assumed that a "bolt-from-the-blue" attack is unlikely (indeed, a program based on Postures 1, 2, 3, or 4 could not cope with such an attack) and that any attack would very probably be preceded by several days or weeks of intense crisis. Thus, a one to two week "surge" period would be available, during which preparedness could be enhanced. Evidently, CD programs not based on this assumption (e.g., Posture 5) would be more reliable but also more costly; cf. the CD programs of Switzerland, Finland, and certain other European nations [Ref. 5]. Regarding the surge period, there are three times which must be distinguished:

t_1 = the time at which the President orders the beginning of the surge

t_2 = the time at which he orders the population to execute the CD posture (i.e., either to evacuate or to take shelter)

t_3 = the time at which the attack begins.

For all programs considered, it was assumed that at least one week occurs between t_1 and t_2. The time between t_2 and t_3 could be minutes, hours, or days; and the President's decision at t_2 would evidently be a strong function of his estimate of this time interval.

C. CONSIDERATIONS CONCERNING A NUCLEAR ATTACK

The large-scale attack assumed for this analysis is considered to be an appropriate pessimistic scenario against which it is reasonable to test potential U.S. CD postures. Assumptions made include the following.

TABLE 1

CIVIL DEFENSE POSTURES

	1 In-Place (No-CD)	2 In-Place (Fallout Protection)	3 Extensive Relocation (to Farms/Hamlets)[e]	4 Less Extensive Relocation[f], Plus 15-psi Blast Protection	5 In-Place (Blast/Fallout Protection)
Risk Areas[a]					
Number of People[b]	140 M	140 M	10 M - Keyworkers 20 M - Stay behinds		140 M
Protection Levels[c]	(4, 2, 10)	100 M Best Available Shelter[d] by psi (>8, 2, 55) 40 M at (5, 2, 40)	Key workers at (55, 45, 500) Stay behinds: 15 M at (>8, 2, 55) 5 M at (5, 2, 40)		(100, 100, 500)
Non-Risk Areas					
Number of People[b]	75 M	75 M	185 M	185 M	75 M
Protection Levels[c]	(4, 2, 10)	35 M Best Available Shelter by PF (>8, 2, 55) 40 M at (5, 2, 25)	35 M Best Available Shelter by PF (>8, 2, 55) 150 M at (5, 2, 500)	(15, 14, 200)	(15, 14, 200)

[a] Risk Areas include the 155 million people potentially exposed to blast overpressure of 2 psi or greater, given a massive mid-1980s Soviet counterforce/countervalue attack.

[b] Assumed 10 percent spontaneous evacuation from risk areas in a crisis for "In-Place" postures, and 80 percent of risk area population evacuated in "Relocated" postures.

[c] The three numbers indicate: mean lethal overpressure (psi), mean casualty overpressure (psi), fallout protection factor (PF).

[d] According to National Shelter Survey inventory.

[e] Specifically, CONUS is divided into grid elements, 2 arc-minutes on a side. Grid elements are treated as follows: population >5000, 80 percent evacuated; population 2000-5000, no change; population <2000, host area for evacuees. Evacuees remain within a given state or group of small states over which the hosting ratio (final-to-initial population) is constant.

[f] Same as for Posture 3 (footnote e) except that: population >10,000, evacuate 80 percent; population 5000-10,000, no change; population <5,000, host area for evacuees.

- The U.S.S.R. initiates a first strike against U.S. military targets, industry, and population.
- All the estimated mid-1980s Soviet intercontinental capability is expended, except for a relatively small reserve force.
- All weapons are surface burst to maximize damage to hardened targets and to maximize population killed by fallout.
- Two major attack scenarios ("A" and "B") were developed. In both, U.S. military and industrial facilities were targeted. Additionally, in Attack A, the in-place population was targeted; in Attack B, the relocated population was targeted, assuming the Soviets had complete knowledge of U.S. relocation plans.

Other types of large-scale attack are possible and are described below. Generally, such other types of attack were not considered for this analysis because they are regarded as less likely or otherwise less appropriate. One such possibility, however, that of an extended attack over weeks or months, is discussed further in Appendix B.

1. Attack to Maximize Fallout

This was one type of "worst-case" attack recently used by Boeing [Ref. 4] to demonstrate the usefulness of CD. It is considered appropriate only for a pure counter-population attack, which is considered less likely than the type of counter-military-industry-population attack postulated herein.

2. High-Altitude Thermal Barrage to Maximize Fires

This type of attack would require clear weather. Furthermore, it appears less efficient for killing people (its presumed purpose) than an attack optimized for blast.

3. Generation of Tidal Waves; Bursting Dams

This type of attack also appears less efficient for killing people (its presumed purpose) than one in which the nuclear weapons were aimed directly at the populated areas.

4. Deliberate Destruction of Food and Water Supplies

Destroying water supplies in reservoirs could be quite difficult since fallout does not float and since it can be easily filtered out of the water. Destruction of food supplies would also be difficult and would require a large number of weapons dedicated to the purpose [Ref. 6].

5. Attack versus MX

The purpose of MX deployment would be to reduce the likelihood of a Soviet attack and to ensure ICBM survivability if it should occur. Evidently, if MX were deployed, any Soviet attack would almost certainly involve the targeting of several thousand warheads against it, thus making them unavailable for direct targeting of population and reducing population casualties to levels much lower than would occur otherwise. However, unless MX deployment becomes a virtual certainty, it is felt that U.S. civil defense planners should prudently base their programs on the assumption that it will not be available. In this study, no MX deployment was assumed.

6. After the First Attack, Attacks Repeatedly at Intervals of Several Days

This could produce renewed high levels of fallout and force the U.S. population to remain sheltered (and possibly evacuated) for many weeks. Although one should evaluate the effectiveness of potential CD programs against this scenario, one should also bear in mind that the problem is not one for CD alone; the nation's overall strategic force posture (including CD) and arms control policy bear directly on the likelihood of such a scenario. Further discussion is contained in Appendix B.

D. CONSIDERATIONS CONCERNING SHELTERS AND EVACUATION

The assumed population distributions were based on census data, which implies that the people are at home as opposed to their places of employment. In the latter distribution, people would presumably be more concentrated

near the centers of cities. This assumption was made because (1) the people are, in fact, at home most of the time (about 70 percent); and (2) during a surge period, it is quite possible that many nonessential workers would remain at home with their families.

People were assumed to be limited to shelters within their own "grid element,"[1] each of which was taken to be 2 minutes of latitude by 2 minutes of longitude (about 3 square nautical miles, corresponding to about 30 minutes walking time). Under most programs, the population (among other things) was assumed to make best use of the presently existing shelter spaces as defined by the National Shelter Survey. People were assumed to stay in shelter as long as necessary

For the cases not involving crisis relocation, it was assumed that 10 percent of the population would spontaneously evacuate. The percentage of spontaneous evacuees is evidently uncertain and scenario-dependent; however, this figure was the best estimate of DCPA personnel and their social science contractors.

For the cases involving crisis relocation, it was assumed that 80 percent of the population in risk areas was relocated. The other 20 percent was assumed to consist of (1) key workers (6 percent of the population) needed to perform essential services in the evacuated areas, such as police and fire protection, and to keep essential industries in operation, e.g., food processing and transportation, refining, and certain defense industries; and (2) certain people (14 percent of the population) who refused to be, or were incapable of being, evacuated. The 6 percent key worker force could be a rotating force working in shifts, each member commuting from the host areas. The estimates of percentage are the best estimates of DCPA personnel and their social science contractors; however, it is recognized that the estimates are uncertain and scenario-dependent.

[1] In cases involving crisis relocation, this statement applies after relocation.

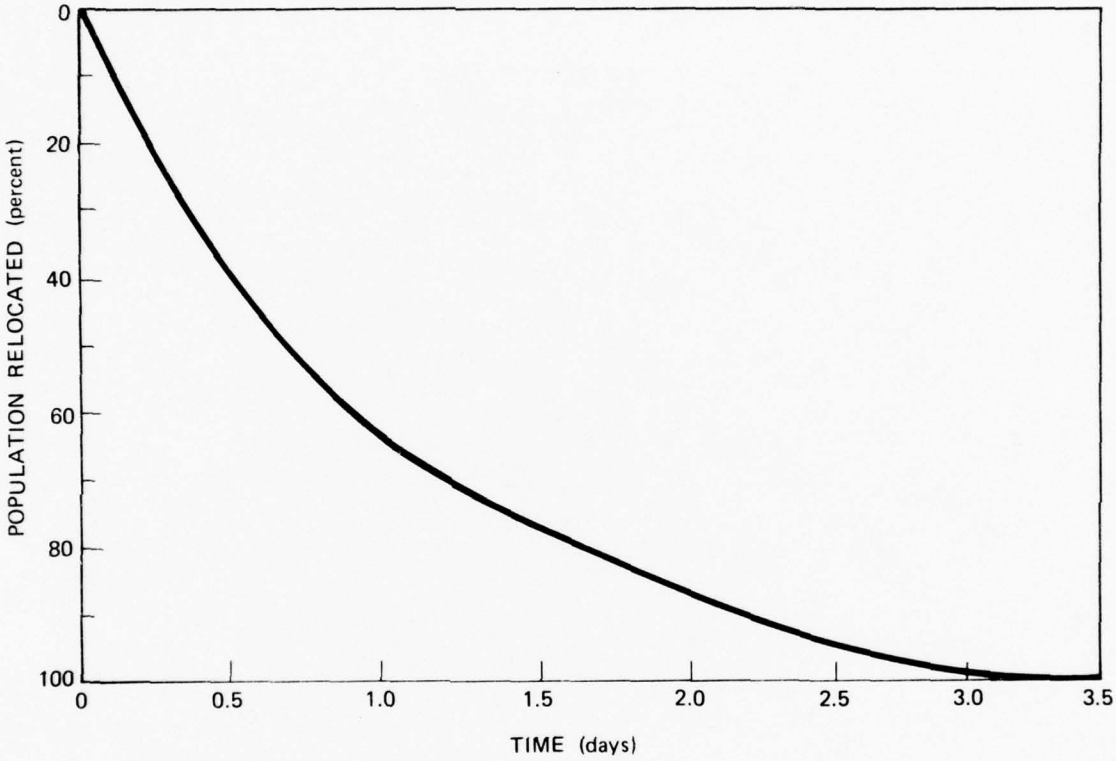
The estimated percentages of the U.S. risk area population which could be evacuated in certain times are: within 24 hours, 60-70 percent; within 48 hours, 80-90 percent; within 72 hours, more than 95 percent. (The New York metropolitan area could potentially be evacuated in 3.5 days.) Potential 100 percent relocation versus time is illustrated in Figure 2. Assuming 10 percent spontaneous evacuation and 20 percent stay-behind (including 6 percent key workers), the relocation could probably be performed within two days for all areas of the nation except the New York and Los Angeles metropolitan areas, which would require about three days [Refs. 7 and 8].

Extensive data on evacuations for natural disasters show that crisis relocation drills involving the public are not only unnecessary but may be counterproductive, because the public will not be too cooperative if they know it is only a drill [Ref. 9].

Crisis Relocation Planning (CRP) must include planning for the estimated required duration of the evacuation, and for termination of evacuation once the crisis is (hopefully) resolved and terminated peacefully.

Crisis evacuation would obviously have major economic impacts. These are the subject of a current DCPA study in which the Treasury, Federal Reserve Board, and Federal Preparedness Agency are participating. Results to date indicate that economic impacts of relocation, followed by crisis resolution and return of evacuees, could continue for 1 to 3 years, but that appropriate government policies could significantly reduce such impacts.

A central requirement for crisis relocation is the necessity of maintaining adequate supporting systems. In order to realize the full potential of evacuation for enhancing lifesaving, supporting systems and operations are required, such as the construction of shelters for "key workers" in risk areas and the construction of PF 50 (or better) shelters in nonrisk areas, direction and control capabilities, radiological defense (RADEF), local warning and confirmation elements, survivable means of broadcasting emergency instruction to the sheltered population, availability of water, etc. Preliminary findings of another study [Ref. 10] suggest



THE CURVE ILLUSTRATES POPULATION LEAVING RISK AREAS, ASSUMING 100 PERCENT RELOCATION.

A CURVE ILLUSTRATING POPULATION ARRIVING AT HOST AREAS WOULD BE DELAYED LESS THAN 2 HOURS, EXCEPT FOR VERY LARGE CITIES WHERE A FEW PEOPLE WOULD TRAVEL 10 HOURS OR MORE.

FIGURE 2. ESTIMATED PERCENT OF U.S. RISK POPULATION RELOCATED, VERSUS TIME

that the effectiveness of a crisis relocation plan would be reduced by as much as half if such supporting systems had not been developed.

Field tests have shown that the average family can, in a matter of hours, build an expedient fallout shelter (protection factor $\geq$ 300) which also can provide significant blast protection (safe overpressure $\geq$ 15 psi) [Refs. 11 and 12]. Soviet CD publications emphasize the feasibility and utility of such shelters [Ref. 13]. In addition, the Soviets have explored potential problems and remedies in constructing expedient shelters in winter when the ground is frozen. (Ostroukh [Ref. 14] briefly states some of the contingency planning and special equipment that Soviet planners feel is necessary to thaw and break up frozen soil when excavating trenches. Plowing and tilling can be accomplished by special rotor machines and excavators, while the soil may be thawed by burners, electrodes, electric heaters, and explosives.) Such expedient shelters were not explicitly included in any of the CD postures analyzed; however, they would probably be used to some extent in a real crisis, and this would result in additional survivors.

In general, the candidate CD programs were structured to take advantage of the relevant facilities and organizations normally present in peacetime, including state and local government structures and emergency organizations; transportation; communications; production of food, fuel, and pharmaceuticals; building construction; and so forth. Furthermore, the options were structured to minimize the required participation of the public in peacetime and minimize the sensitivity to uncertainties in the attack characteristics.

E. CONSIDERATIONS CONCERNING METHODS OF ESTIMATING FATALITIES

At the outset, it should be remembered that the "outcome of the war," (i.e., the post-attack politico-military situation) may be of overriding importance regarding all questions concerning the post-attack environment. However, this highly uncertain subject was considered to be beyond the scope of the present analysis.

For the purposes of this analysis, a fatality has been defined as a person who is either killed directly by the attack or who becomes incapacitated or seriously ill as a direct result of the attack and dies without recovering, even though death may occur several weeks (or even months) later. A person who becomes ill or injured but recovers is not counted as a fatality. (Interestingly, the survivors of Hiroshima and Nagasaki have had a higher life expectancy than the Japanese population generally [Ref. 15].) An attempt has been made in this analysis to estimate fatalities as realistically as possible, considering all relevant factors.

Near-term effects of nuclear weapons can be roughly divided into two types: radial effects, which depend primarily on the distance from ground zero; and fallout, the effects of which are much stronger in the downwind direction. The criteria for radial effects are given in terms of peak overpressure. However, when these criteria were chosen, the other radial effects were also taken into account; e.g., the chosen value of mean lethal overpressure is the estimated value of peak overpressure at which the probability of fatality rises to 50 percent, regardless of the mechanism of fatality. In general, this mechanism is impact by debris or by dynamic pressure. Thermal burns are important only in clear weather and only for the small percentage of the population who are in the open and completely unwarned. Initial nuclear radiation is much less important than dynamic pressure and debris for the megaton-class nuclear weapons which the Soviets are currently deploying. The effects of fire are fairly uncertain, but a number of analyses of Hiroshima, Dresden, and other sites of destruction indicate that, in a nuclear attack, the percentage of fatalities caused directly by fire or its effects (including carbon monoxide poisoning) would probably be of the order of 1-4 percent of the population in the areas experiencing fires [Ref. 16]. These effects are neglected in this analysis. The criteria for fatalities and casualties from fallout radiation are based on data developed by the National Council on Radiation Protection [Ref. 17]. Based on this data, 450 roentgens (R) is taken as the dose producing a 50 percent chance of death, and 250 R is taken as the dose producing a 50 percent chance of a casualty severe enough to incapacitate a person. These numbers are chosen assuming that medical care is not available [Refs. 6 and 17].

A number of intermediate and long-term effects are frequently mentioned as causing additional fatalities. The most serious potential effect would be epidemics of communicable diseases due to lack of adequate food, water and medical supplies. While a definitive analysis covering all facets of these longer term complex phenomena has yet to be performed, a number of studies over the years have addressed various aspects. [See Refs. 6, 16, 18, 19, and 20.] These analyses generally indicate that such intermediate and long-term effects would present problems, but with proper planning, the overall effect on the numbers of U.S. fatalities would be small compared with the short-term effects of the attack. Fatalities from such effects are not specifically included in the present estimates.

F. ESTIMATED FATALITIES

The assumed attack was configured to give high probabilities of destruction for all targeted military and industrial installations. Specific estimates of the level of military and industrial destruction which would result are not included in this report since they are beyond the scope of the analysis of CD programs.

1. Results for the Chosen Postures

An analysis of the expected fatalities and casualties in a counterforce/countervalue attack was performed by DCPA using the TELOS computer model. The results are shown in Figure 3. These results indicate that, without crisis relocation or an extensive blast shelter program, fatalities would be 60-80 percent (130-170 million). With relocation, fatalities could be about 10 percent (20 million) if the relocated population were not directly targeted, and about 20-30 percent if it were. With extensive blast shelters, fatalities could be about 10 percent.

2. Sensitivity of Results to Level of Attack and Extent of Relocation

Figure 4 illustrates the sensitivity of fatalities (from blast only--not fallout) to the level of attack and to the general type of relocation.

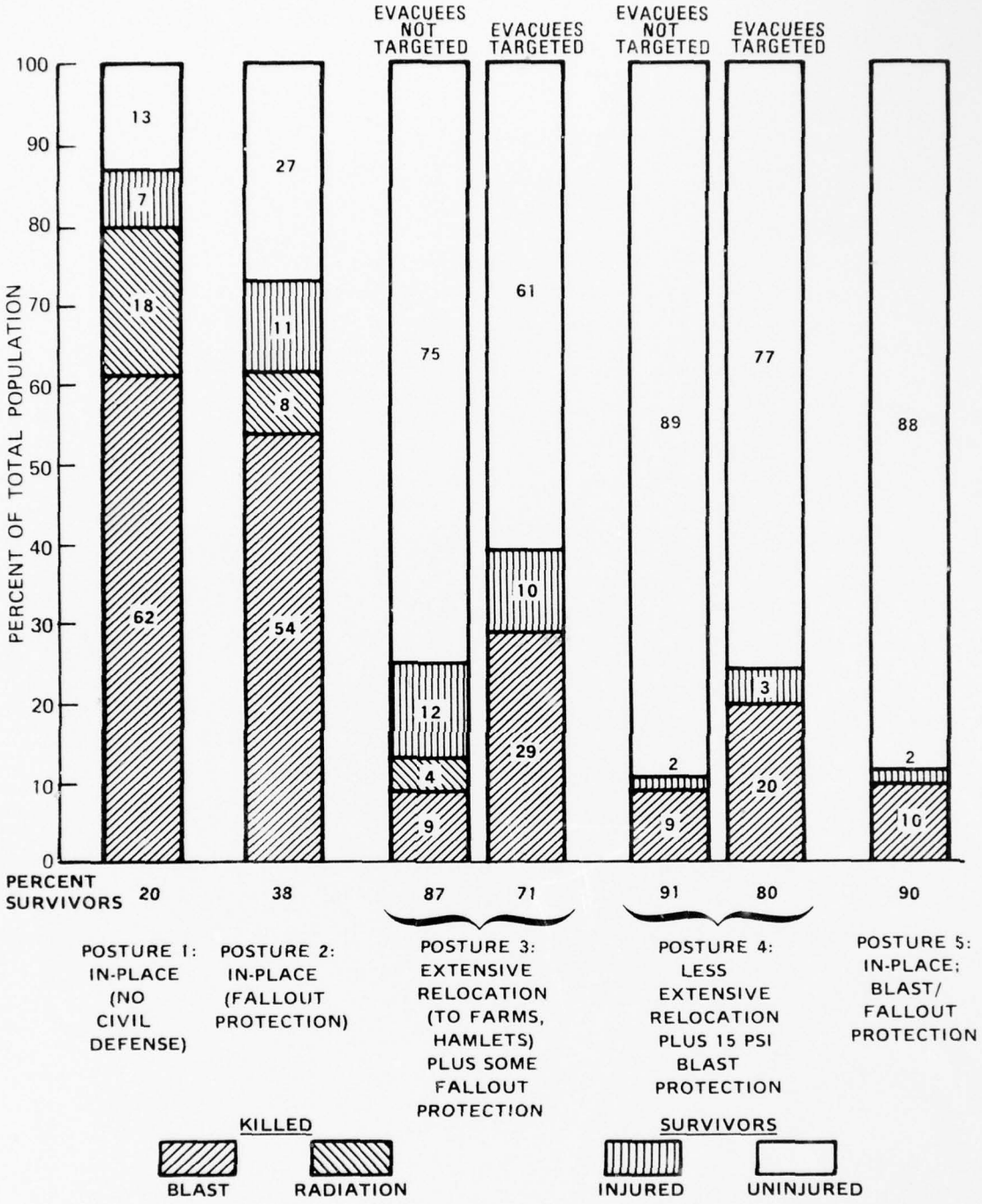


FIGURE 3. CASUALTY CALCULATIONS FOR ATTACK AGAINST MILITARY AND INDUSTRIAL FACILITIES, PLUS POPULATION

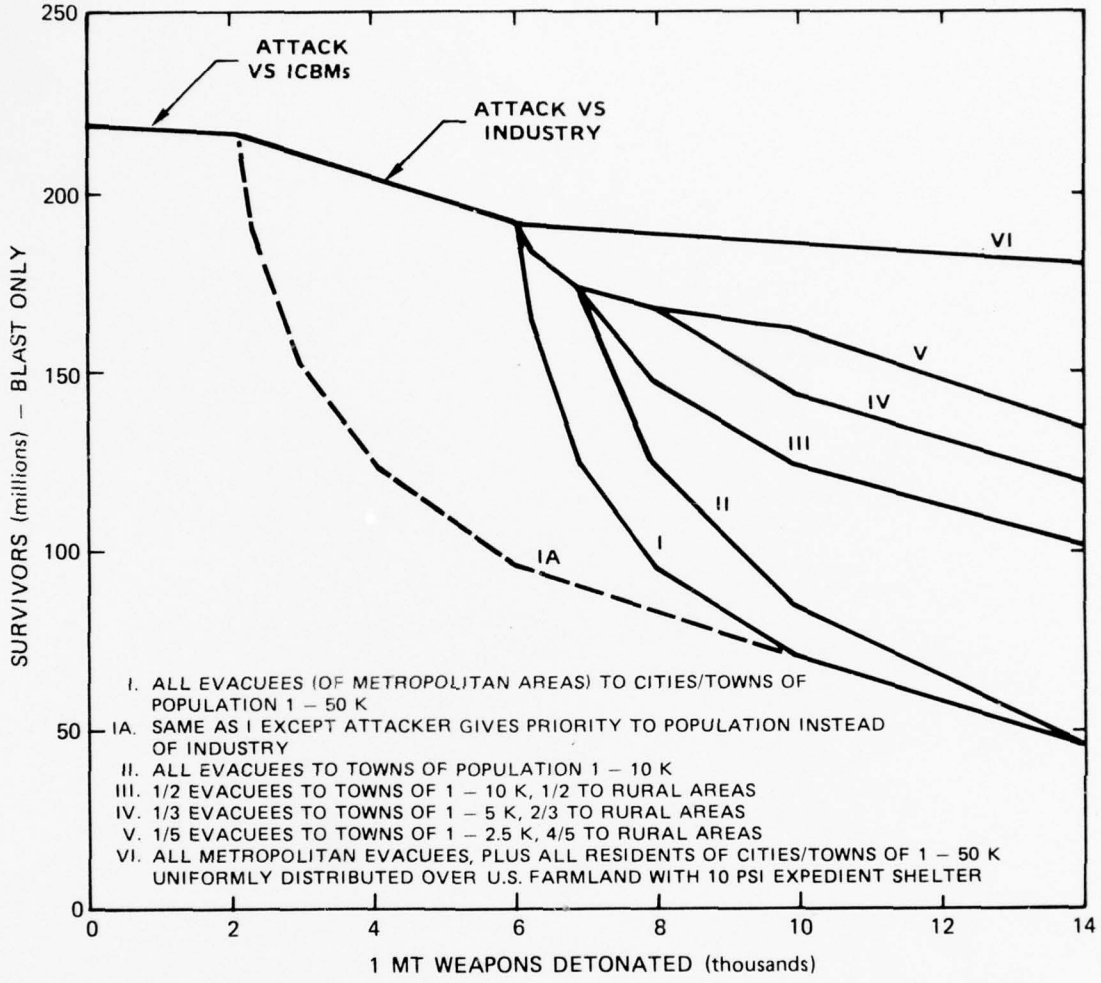


FIGURE 4. SENSITIVITY OF BLAST FATALITIES TO LEVEL OF ATTACK AND DEGREE OF RELOCATION; ATTACKER TARGETS RELOCATED POPULATION

For all cases shown, relocated population is assumed to be targeted. The figure also shows the dependence of the blast fatalities on the nature of the attack versus military and industrial facilities. The curves are approximations, developed not by detailed computer analysis but by hand calculations. Assumptions used in the calculations include:

- Detonated weapons are all 1-MT surface bursts.
- The initial portion of the attack is 2,100 MT detonated on ICBM silos.
- The next portion is ~3,900 MT, producing at least 10 psi of blast overpressure on the 35,000 square miles of U.S. "urbanized areas" (i.e., for each metropolitian area, the central city of 50,000 or greater population, plus the contiguous closely-settled urban fringe). This implies at least an intent to attack the large proportion of U.S. industry in the Standard Metropolitan Statistical Areas (SMSAs), plus the leadership and military installations in SMSAs, and some population as well.
- Additional detonations are on non-urbanized area cities and towns of 50 to 25 K resident population, 25 to 10 K, 10 to 5 K, 5 to 2.5 K, and 2.5 to 1 K, in that order. This implies an intent to maximize population fatalities and/or to attack the additional industry in the smaller cities and towns, and thus represents a worst case assumption. A 1 MT weapon detonated on a "place" of 1 to 50 K population is assumed to kill all persons in that place, whether residents or evacuees from an urbanized area.
- Persons experiencing fallout have available (or have developed) fallout protection adequate to prevent a significant number of fallout fatalities. Thus, this calculation examines blast fatalities only; other parametric analyses would be needed to establish the level of fallout protection required.

The demographic data used to make this calculation, taken from the 1970 census, are given in Table 2. It was assumed that 80 percent (108 million) of the residents of urbanized areas were evacuated and relocated elsewhere. The assumptions made for the different cases were as follows:

I. Evacuees distributed evenly (constant ratio of final to initial population) in cities/towns of 1 to 50 K.

TABLE 2

U.S. DEMOGRAPHIC DATA[a] ASSUMED FOR CALCULATING SENSITIVITY OF BLAST FATALITIES TO LEVEL OF ATTACK

	Places		Population (Millions)	
	Number	Cumulative Total	Number	Cumulative Total
Inside Urbanized Areas (Central city of 50,000 or more, plus contiguous closely-settled urban fringe; includes 35,018 mi^2)	3,222	3,222	135.0	135
25-50 K	205	3,427	6.9	142
10-25 K	646	4,073	9.7	152
5-10 K	1,115	5,188	7.7	159
2.5-5 K	1,874	7,062	6.5	166
1-2.5 K	4,191	11,253	6.6	172
Places < 1 K	9,515	20,768	3.9	176
Farm	-		8.7	185
Other rural (non-farm)	-		34.7	220

[a]The population is assumed to be 220 M. Distribution is the same as 1970 census, except for an extra 17 M people in urbanized areas.

IA. Same as A except attacker gives priority to evacuated population instead of industry.

II. All evacuees to cities/towns of 1 to 10 K; other residents remain in-place.

III. One-half evacuees to towns of 1 to 5 K; one-half to rural areas; other residents remain in-place.

IV. One-third evacuees to towns of 1 to 5 K; two-thirds to rural areas; other residents remain in-place.

V. One-fifth evacuees to towns of 1 to 2.5 K; four-fifths to rural areas; other residents remain in-place.

VI. All evacuees, plus all residents of cities/towns of 1 to 50 K, uniformly distributed over 1.8 M square miles of U.S. farmlands, with 10-psi shelter.

As would be expected, if all evacuees are in cities and towns from 1 to 50 K (Case I), survival falls off sharply as the cities down to 5 K are attacked, because these cities contain both their resident population and evacuees. Case VI, by contrast, with uniform distribution, has above 80 percent survival even for 14,000 weapons detonated. Survivors for cases II through V, with increasing numbers of evacuees dispersed to the smaller towns and/or rural areas, fall in between.

In sum, the greater the dispersal of evacuees, the greater the number of survivors, a not surprising result. The calculations show that in the increasingly weapons-rich environment anticipated to develop through the mid-1980s, a more dispersed crisis evacuation posture becomes increasingly essential to assure relatively high survival under worst-case possible attacks.

IV. CIVIL DEFENSE PROGRAMS

A. EFFECTIVENESS AND COST

Based on the foregoing discussion, six candidate CD programs have been identified. Each program would be designed to place the U.S. population into a certain CD posture if an intense crisis occurred and the President so ordered. Three of the programs include an option for crisis relocation, should the President decide to initiate it. Each of these three also includes a "fallback" option for protecting the population in-place if, for lack of time or whatever other reason, the President does not order relocation but directs the people quickly to take shelter in-place. Table 3 illustrates the relationship between the

TABLE 3

RELATIONSHIP BETWEEN POSTURES AND PROGRAMS

Program	Brief Description	Assumed Posture: Population Not Relocated	Assumed Posture: Population Relocated
A	"No CD"	1	NA
B	Current funding; no CRP	[a]	NA
C	Best use of present shelter; no CRP	2	NA
D	Relocation to farms/hamlets	2	3
E	Less extensive relocation; 15-psi blast protection in host areas	2	4
F	Extensive in-place blast protection	5	NA

[a] Fatalities assumed to be average of those from Programs A and C.

programs and the postures. Table 4 summarizes the fatality estimates for the programs.

TABLE 4

PERCENT SURVIVORS FOR DIFFERENT CD PROGRAMS

Program	Population In-Place	Population Relocated	Population Relocated and Targeted
A	20		
B	30[a]		
C	38		
D	~40[b]	87	71
E	~40[b]	91	80
F	90		

[a] The result for Program B was estimated to be approximately mid-way between the results of Programs A and C, based on best estimates of DCPA personnel concerning the present U.S. CD program.

[b] Slightly higher than for Program C because of the blast shelters in the cities for key workers.

Costs were estimated for each program, as shown in Table 5; further details are given in Appendix C. Figure 1 then summarizes the costs and effectiveness of the CD programs. These results were compared with those generated in previous analyses (e.g., PONAST II) and are generally consistent with them. More specifically, a heavier attack was assumed for the present analysis than had been assumed previously; the estimated survivors for a given level of CD are correspondingly lower for this attack than for the less severe attacks assumed in previous studies. The overall conclusion is that adequate CD preparation can definitely reduce the vulnerability of the U.S. population to a counterforce/countervalue nuclear attack.

TABLE 5

ESTIMATED PROGRAM COSTS
(1979 $ Millions; Further Details are Given in Appendix C)

	C--In-Place Fallout Protection		D--Crisis Evacuation, Fallout Protection		E--Crisis Evacuation 15-psi Blast Protection		F--Urban Blast Shelters	
	5 Year	Maintenance	5 Year	Maintenance	5 Year	Maintenance	5 Year	Maintenance
Shelter								
Survey	50	5	60	5	60	5	200	0
Planning for Crisis Development			220	10	220	10		
Materiel for Crisis Development					9000	45		
Peacetime Construction							52,750	525
Shelter Marking	5	1	5	1	5	1	NA	
Shelter Stocks			130	15	975	100	2,000	200
Ventilation Kits			65	5	185	20		
Shelter Management	10	1	50	5	50	5	100	20
Nuclear Protection Planning								
In-Place Protection	30	5	30	5	30	5	500	100
Crisis Evacuation	NA		170	20	170	20	NA	
Warning	45	10	50	10	50	10	2,200	20
Direction and Control								
Emergency Operating Centers	60	10	165		165		920	85
Training and Exercising	20	5	40	10	40	10	80	15
Radiological Defense	50	10	90	15	90	15	800	140
Emergency Public Information and Crisis Citizen Training	50	10	150	15	150	15	400	50
Management	320	70	320	70	320	70	1,500	300
Research and Development	50	10	80	15	80	15	100	20
Five-Year Total Cost	690		1,625		11,590		61,550	
Annual Maintenance Cost		135		200		345		1,475

NOTE: Five-year cost is for program acquisition FY 1979-1983; maintenance cost is annual cost thereafter. Program A includes only $7 M annually for warning and $3 M for R&D. Program B is the current program at $100 M annually.

Two additional options to the programs were also formulated and are described in Appendix C. Option 1 would improve, over the long term, the in-place shelter posture of the U.S. by incorporating "slanting" design techniques into new construction. This means that any new construction would be required by law to have blast and fallout-protected shelter spaces, thereby slowly reducing the in-place vulnerability of the U.S. population. Legislation would be necessary (see Appendix D); mandatory "slanting" would add about $20 billion (about $1 billion per year over the next 20 years) in construction costs. Analyses have shown that the incorporation of such "slanting" techniques would greatly increase U.S. survivability in a countervalue attack. In the initial five years of the program, additional survivors would total about 10 percent of the U.S. population, with an incremental increase of 10 percent in additional survivors for every five years the program is implemented.

Option 2 provides for a one-year intensive buildup of CD capabilities. The primary feature of this buildup would be the procurement during the year of the materiel required for crisis construction of expedient shelters (15-psi blast/100 PF). The one-time cost for procuring the necessary material for shelter construction and the necessary stocks for the shelters would be about $20 billion.

B. Feasibility

There appears to be little doubt that these potential CD programs are all technically feasible, assuming that a crisis surge period is available and that the requisite funds are provided. In particular, extensive research has been performed [Refs. 7, 8, 9, 11 and 12] to verify shelter designs and evacuation methods (including studies of natural disasters). In the event of a crisis, the performance of any of the programs would be critically sensitive to decisions being made early enough for appropriate CD actions to be completed.

C. PUBLIC CONFIDENCE AND ACCEPTABILITY

1. Public Attitudes Toward CD in General

Contrary to a widely-held belief, during the 1960s there were many indications of a high level of public awareness and interest in CD matters. Moreover, though most Americans do not hold intense views on the subject of civil defense, attitude surveys indicate that most citizens assume (erroneously) that adequate CD measures are being funded and implemented by local, state, and federal government authorities. State and local government officials tend to provide resources for their part of the CD program primarily because of its utility in peacetime emergencies, though they also recognize its role as an aspect of the national defensive posture and cooperate in the attack-oriented aspects of the program. Reactions to date by elected officials to CRP are to the effect that it would be better to have a plan and not need it, than to need such a plan and not have it.

It is imperative that any CD program which is adopted by the U.S. Government be acceptable to the American public at the "grass roots" level. The public need not be particularly interested, but they should at least be generally tolerant. This emphasizes the advantage of dual-use CD facilities and programs, especially those which are applicable to natural disaster protection as well as nuclear attack preparedness.

2. Expected Public Attitudes Toward Crisis Relocation

As a result of the first workshop, some of the members organized themselves into a smaller social science panel to discuss behavioral aspects of crisis relocation planning. They produced a report which comprises Appendix E. It is their opinion that the public would comply with a Presidential order to evacuate and that the acceptability of such an action would be enhanced by a sound public educational program. They reached several important conclusions concerning an efficient relocation effort. These include: (1) organizational, institutional and cultural

continuities should be maintained as much as possible; (2) plans should be made for maximizing the movement of people out of urban areas in the shortest possible time, without creating bottlenecks; (3) spontaneous evacuation will most likely occur--perhaps between 10 and 30 percent of the risk area population--before a Presidential directive to do so; (4) a percentage of the risk area population will not evacuate under any circumstances; (5) phased relocation (i.e., subdividing the population and assigning priorities) would be necessary only for a few of the largest metropolitan areas; (6) plans are necessary for protecting key workers (and perhaps their families) against primary weapons effects in risk areas; and (7) an expedient shelter program should not be a major component of a CD posture, since it may not inspire public confidence. The social scientists further concluded that the development of a publicly acceptable CRP program--given the preceding qualifications--is a feasible and workable idea, but one that requires a low, day-to-day, peacetime impact on the general public.

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Appendix A

CIVIL DEFENSE WORKSHOPS

System Planning Corporation (SPC) was selected to support analyses of U.S. CD options, under Contract DCPA01-77-C-0219, performed for the Defense Civil Preparedness Agency. As part of its study, SPC hosted and chaired three two-day workshops on 15-16 September, 12-13 October, and 8-9 November 1977. Over fifty authorities from many disciplines and from all parts of the U.S. attended these workshops to discuss the various aspects and implications of the study. In addition, on 11 October and 7 November, SPC hosted two one-day meetings of a smaller group of participants, to discuss relevant social science issues. Topics discussed at the various meetings included:

- History and Current Status of U.S. CD
- Concepts for In-Place Protection
- Concepts for Crisis Relocation
- Studies of Potential Crisis Relocation from New York and Los Angeles
- Possible Characteristics of a Large-Scale Nuclear Attack Against the U.S.
- The Possibility that an Attacker Would Target the Relocated Population of the U.S.
- Issues of Credibility, Confidence, and Acceptance of CD, Particularly of Crisis Relocation
- Expedient Shelter Construction: Field Tests
- Surge Period Operations
- CD Postures and Programs: Description, Rationale, Effectiveness and Costs.

A list of the workshop attendees is attached. SPC gratefully acknowledges the many valuable contributions made by the attendees. However, SPC assumes responsibility for the contents of this report.

CIVIL DEFENSE WORKSHOPS

NON-GOVERNMENT ATTENDEES

Mr. E. C. Aldridge, Jr.
System Planning Corporation

Mr. Harold Bergan
Division of Emergency Government
State of Wisconsin

Dr. Donald G. Brennan
Hudson Institute

Mr. Edmund D. Brunner, Jr.
The RAND Corporation

Dr. Joe Bohlen
Iowa State University

Mr. William Chenault
Human Sciences Research, Inc.

Dr. Conrad V. Chester
Oak Ridge National Laboratory

Dr. Eugene Durbin
The RAND Corporation

Dr. Russell Dynes
American Sociological Association

Mr. John Fielding
Delta Research Corporation

Dr. Richard Garwin
IBM Fellow

Professor Leon Gouré
Center for Advanced International Studies

Mr. Paul Groover
Science Applications, Inc.

Professor Eugene Haas
University of Colorado

Mr. Winder M. Heller
System Planning Corporation

Mr. Clark Henderson
Stanford Research Institute

Mr. Frank Hoeber
Consultant

Mr. Robert W. Hubenette
Center for Planning & Research

Mr. T. K. Jones
Boeing Aerospace Corporation

Mr. Richard Laurino
Center for Planning & Research

Dr. Donald Marshall
Consultant

Dr. Jiri Nehnevajsa
University Center for Urban Research
University of Pittsburgh

The Honorable Paul H. Nitze
System Planning Corporation

Dr. Peter J. Nordlie
Human Sciences Research, Inc.

NON-GOVERNMENT ATTENDEES (Cont'd.)

The Honorable Steuart L. Pittman
Shaw, Pittman, Potts, and Trowbridge

Mr. Jeffrey Ranney
System Planning Corporation

Mr. Ren F. Read
Consultant

RADM Joseph Russel, USN (Ret.)
Boeing Aerospace Corporation

Mr. Tony Stigliano
Far West Laboratory

Mr. Walmer Strope
Center for Planning and Research

Dr. Roger J. Sullivan
System Planning Corporation

Dr. Eugene Wigner
Princeton University

CIVIL DEFENSE WORKSHOPS

GOVERNMENT OBSERVERS

Dr. David Bensen
Defense Civil Preparedness Agency (DCPA)

Dr. James O. Buchanan
DCPA

Dr. William K. Chipman
DCPA

Mr. Daniel Costello
Office of Management and Budget

LTC A. F. Czajkowski
OASD (PA&E)

Dr. Lynn Davis
OSD/ISA

Dr. John A. Eisele
OASD (PA&E)

Ms. Lannie Elderkin
DCPA

Dr. John Eley
Federal Preparedness Agency (FPA)

Ms. Barbara Evans
DCPA

Mr. Ralph Garrett
DCPA

CAPT John Graham
AFIS/INC

Mr. Donald Hudson
DCPA

LTC Ronald L. Kronz
Joint Chiefs of Staff

Mr. Dalimil Kybal
Federal Preparedness Agency

COL David A. Lerps
Joint Chiefs of Staff

Dr. William W. Lewis
OASD (PA&E)

Mr. Clifford McLain
DCPA

Dr. Roger Molander
National Security Council

LTC Michael Murray
AFIS/INC

Mr. Vincent Otto
DCPA

Mr. Joel Resnick
OASD (PA&E)

Mr. George Sisson
DCPA

Mr. Donald E. Thomas
DCPA

The Honorable Bardyl R. Tirana
Director, DCPA

Mr. Frank Vogel
DCPA

GOVERNMENT OBSERVERS (Cont'd.)

Mr. Robert Volland
Office of Management and Budget

Mr. Sy Wengrovitz
DCPA

CAPT John Zawila
Defense Nuclear Agency

Appendix B

THE POSSIBILITY OF AN EXTENDED ATTACK

The possibility is discussed that, after launching an initial large-scale nuclear attack against the U.S., the U.S.S.R. might launch successive nuclear strikes against the U.S. over a period of weeks or months, thus requiring that the U.S. population remain in its civil defense posture (relocation and/or shelters) for as long as possible. Each successive strike could be much smaller than the initial one (say 50 to 100 MT); the continuing uncertainty and danger could provide ample incentive to keep the people in the CD posture.

A. CONTEXT

For the purposes of this discussion, the following generalized scenario is assumed.

- An intense crisis occurs, and both the U.S.S.R. and the U.S. execute their CD plans, thus placing their respective populations in postures involving extensive relocation plus fallout shelters.[1]
- The U.S.S.R. conducts a large-scale nuclear attack against the U.S.'s military and industrial facilities plus some population. Twenty to thirty million Americans are killed. The U.S.S.R. withholds a reserve force of 3,000 to 4,000 megatons.
- The U.S. retaliates with some of its remaining forces, primarily against Soviet industry, destroying less than half of the U.S.S.R.'s remaining strategic forces and killing fewer than 20 million Soviet people.
- A waiting period begins during which the fallout levels drop.

[1]An analogous argument can be made for the case in which the people are ordered into in-place blast shelters.

B. AN EXTENDED ATTACK?

Soviet doctrine does not call for destroying population per se. Furthermore, negotiations might occur between the two nations during the post-attack period. However, assuming that no significant negotiations occurred and that the U.S.S.R. had the intention of destroying additional American people in the post-attack period (after they emerged from shelters), the Soviets' assessment of their capability to do this could depend on two important factors: the remaining strategic force strengths[1] of the two nations, and the capabilities of each to keep their populations relocated and sheltered. The Soviets could assess their capability for an extended attack as follows:

Remaining Strategic Force Ratio: U.S./U.S.S.R.	Relocation Stay-Time Ratio: U.S./U.S.S.R.	Possible Scenario	Comment on Possible Soviet Extended Attack
High	High	U.S.S.R. must leave CD posture first, and U.S. has strategic superiority	Highly unlikely; only Soviet population vulnerable
High	Low	U.S. must leave CD posture first, but also has strategic superiority	Unlikely; both sides' population would be vulnerable
Low	High	U.S.S.R. must leave CD posture first, but also has strategic superiority	Unlikely; Soviet population vulnerable to relatively few U.S. weapons
Low	Low	U.S. must leave CD posture first, and U.S.S.R. has strategic superiority	Possible; potential Soviet advantage to continue attack

[1]It is assumed that the comparison of force "strength" is relatively independent of the metric, e.g., numbers of vehicles, throwweight, equivalent weapons, countermilitary potential, and so forth. If this is not true, the arguments become more elaborate but can still be made.

C. CONCLUSION

In order to minimize the likelihood of an extended attack by the U.S.S.R., the U.S. should ensure the following:

- The U.S. post-exchange strategic forces should not be significantly inferior to those of the U.S.S.R., according to any objective metric. Both arms control negotiations and unilateral force structure decisions would be relevant here.
- The U.S.'s potential stay-time in the relocated/sheltered posture should be at least as great as that of the U.S.S.R. Relaxing of the CD postures could then be performed essentially simultaneously by the two nations, perhaps by mutual agreement.

Methods for ensuring these two conditions can be developed through appropriate detailed analyses.

Appendix C

PROGRAM AND COST DESCRIPTIONS, AND OPTIONAL ADDITIONS TO PROGRAMS[1]

A. PROGRAM A--NO CIVIL DEFENSE

1. Key Feature

Maintains little or no civil defense (e.g., warning only).

2. Description

Most of the current civil defense program would be discontinued, with maintenance only of the existing warning system and a small research effort. About four to six years would be required to develop a capability, essentially from scratch, should a decision be made later to rebuild civil defense. Capabilities that state and local governments elected to maintain at their own expense for peacetime disasters would not be likely to include nuclear attack-related programs, e.g., shelter or radiological defense.

3. Costs

Five-year cost (1979 dollars)	$50 M
Average annual cost, FY 1979-1983	$10 M
FY 1979 cost	$10 M
Annual cost after FY 1982	$10 M

B. PROGRAM B--CURRENT CD PROGRAM

1. Key Feature

Keeps expenditures to the current level, while maintaining as much capability for in-place protection as possible.

[1]Cost estimates were developed by DCPA.

2. Description

The current program was described in the January 1977 DoD Annual Report as "a very modest base of civil defense activities which, if necessary, could be built on in the future." It provides incomplete coverage in such areas as shelter surveys of protection in existing structures, shelter use planning, warning, radiological defense, development of state and local capabilities for conducting emergency operations, training, and establishment of state and local Emergency Operating Centers. It would take about one year of intensive effort, during a period of increased international tension, to develop capabilities to protect the population near their places of residence.

3. Costs

Five-year cost (1979 dollars)	$500 M
Average annual cost, FY 1979-1983	$100 M
FY 1979 cost	$100 M
Annual cost after FY 1983	$100 M

C. PROGRAM C--ENHANCED CURRENT CD PROGRAM (IN-PLACE PROTECTION AGAINST FALLOUT IN EVENT OF COUNTERFORCE ATTACK)

1. Key Feature

Keeps expenditures to a moderate level, while developing a capability to protect the population in-place against fallout, as a hedge against the failure of deterrence resulting in an attack on U.S. strategic offensive forces.

2. Description

This program, like the current program, concentrates on providing effective fallout protection in-place in case of attack on counterforce targets only. It provides for improved warning, radiological defense, emergency public information, shelter management, and related capabilities,

to provide a one- to two-week surge capability (in place of current one-year surge requirement); however, it does not provide for stocking shelters or crisis relocation planning.

3. Detailed Program Description

a. Shelter Survey

Complete survey of best available protection in existing structures: In areas near counterforce targets (population of about 13 M) identify best-available blast as well as fallout protection. In the balance of the U.S., identify fallout protection and, in areas of shelter deficit, structures whose fallout protection could be upgraded during crisis periods. After five years, cost falls to maintenance level. (Five-year cost, $50 M; annual maintenance cost thereafter, $5 M.)

b. Shelter Marking

Mark all presently unmarked public shelters, including about 95,000 now identified but unmarked, as well as additional facilities identified by FY 1979-83 surveys. ($5 M; annual maintenance, $0.5 M.)

c. Shelter Management

Train cadre of Shelter Manager Officers/Instructors who will prepare shelter plans and train about one-third of the 500,000 Shelter Managers needed, the balance to be trained during a crisis. ($10 M; annual maintenance, $1 M.)

d. Nuclear Civil Protection Planning

Develop or revise community shelter plans (CSPs), providing maps and other guidance for citizens on "where to go and what to do" in case of attack warning, to make optimum use of best-available nearby protection; does not include evacuation planning. ($30 M; annual maintenance, $5 M.)

e. Warning

Extend National Warning System coverage to broadcast stations; continue matching-fund support for current state and local warning systems. ($45 M; annual maintenance, $9 M.)

f. Direction and Control

Continue matching-fund support for construction of fallout-protected local Emergency Operating Centers; resume support at moderate level for on-site simulated-emergency exercises for key local officials and EOC staffs essential to developing ability to execute emergency plans; construct two remaining Federal Regional Centers to provide full coverage. ($80 M; annual maintenance thereafter, $15 M.)

g. Radiological Defense

Train Radiological Defense Officers needed to provide backbone of Radef system and to train 1.2 M Radiological Monitors during a crisis; procure low-cost ratemeters and dosimeters. ($50 M; annual maintenance, $10 M.)

h. Emergency Public Information (EPI) and Crisis Training

Provide Electromagnetic Pulse (EMP) protection for 600 radio stations currently in broadcast station protection program; provide mass-media EPI materials for crisis use; publish Community Shelter Plan information materials for citizens (e.g., in telephone directories) on where to go/what to do in case of attack; establish crisis-expectant training system to meet citizens' demands for information in periods of developing crisis. ($50 M; annual maintenance, $11 M.)

i. Management

Continue matching-fund support for state/local civil defense staffs, based on need for an effective management structure for both peacetime system development and crisis surging; maintain federal staff. ($320 M; annual maintenance, $68 M.)

j. Research and Development

Accelerate R&D to investigate and, as feasible, test more effective CD systems for anticipated future threats. ($50 M; annual maintenance, $10 M.)

4. Surge Actions

Actions required to bring the system to full readiness during a one- to two-week crisis buildup ("surge") period would include training about 1.2 M Radiological Monitors and 500,000 Shelter Managers; upgrading fallout protection of existing structures in shelter-deficit areas; stocking about 125 M public shelter spaces with locally-available food and water (and/or relying on citizens to bring their own); and improvising Emergency Operating Centers in localities lacking fallout-protected ones.

5. Costs

Five-year cost (1979 dollars)	$690 M
Average annual cost, FY 1979-1983	$140 M
FY 1979 cost	$120 M
Annual cost after FY 1983	$130 M

D. PROGRAM D--CRISIS EVACUATION CAPABILITY INCLUDING PROVISION OF FALLOUT PROTECTION FOR EVACUEES; USE OF BEST-AVAILABLE NEARBY SHELTER IF CRISIS EVACUATION PLANS ARE NOT EXECUTED

1. Key Feature

Provides crisis evacuation capability to enhance population survival should a severe crisis lead to massive attack, while maintaining a hedge for in-place protection.

2. Description

This program provides basic crisis evacuation capability, including maintaining evacuated posture for about a month, if necessary (and

probably for a significantly longer time). Protection for evacuees would be provided by crisis (surge) actions to upgrade fallout protection factors of existing structures in host areas (to average of PF 50), based on peacetime planning; but to keep costs low, there would be no peacetime stockpiling of materiel. Provides in-place protection capabilities as in Program C as a hedge should time or circumstances preclude crisis evacuation (e.g., rapidly-escalating crisis in which the decision was not made to implement crisis evacuation plans, or was made so late as to permit only partial evacuation).

3. Detailed Program Description

The following elements are added to those in Program C to develop crisis evaluation capability:

a. Shelter Survey

Accelerate Host Area survey to support crisis relocation planning; then complete survey of best-available blast and fallout protection in risk areas by end-FY 1983. (Five-year cost, $60 M; annual maintenance thereafter, $5 M.)

b. Planning for Crisis Development of Shelter

Conduct detailed planning for crisis upgrading of existing structures in non-risk areas to attain average fallout protection factor of 50. ($1/space x 175 M spaces = $175 M.) Conduct detailed planning to develop 55-psi blast protection for 9 M key workers expected to commute into risk areas to keep essential industries and services operating, by construction of high-quality expedient shelters and/or upgrading blast resistance of basements of existing structures ($5/space x 9 M = $45 M). (Total five-year cost $200 M; annual maintenance thereafter, $10 M.)

c. Shelter Stocking

Provide water containers and sanitation kits for 112 M evacuees (but no food or medical supplies), and ventilation kits for crisis-upgraded structures in host areas. ($195 M; annual maintenance, $20 M.)

d. Nuclear Civil Protection Planning

Provide enhanced planning staff to develop crisis evacuation plans permitting evacuation posture to be held for at least four weeks and, if possible, for longer periods if required, and to provide confidence of effective execution of plans. ($200 M; annual maintenance, $25 M.)

e. Warning

Develop a "crisis home alerting technique" (CHAT) capability to improve nighttime warning. ($5 M.)

f. Direction and Control

Develop approximately 1,500 austere, fallout-protected Emergency Operating Centers in host areas, located to provide a distributed, survivable direction and control network ($165 M). (Note: This is a best current estimate of direction and control requirement, subject to refinement by FY 1978 R&D.) Enhance program to provide on-site simulated-emergency exercises for key local officials, with emphasis on host-area operations ($40 M). (Five-year cost, $205 M; annual maintenance thereafter, $10 M.)

g. Radiological Defense

Enhance to provide for training Radiological Monitors and otherwise provide greater confidence of performance. (Five-year Radef cost, $90 M; annual maintenance thereafter, $15 M.)

h. Emergency Public Information

Provide fallout and EMP protection, emergency generators, and programming links to local EOCs for approximately 2,000 broadcast stations in host areas, to provide a distributed survivable capability to provide emergency information and instructions to the sheltered population in the transattack and postattack periods (2,000 x $50,000 = $100 M). (Note: This is a best current estimate of Emergency Public Information

requirements for a program based on crisis evacuation, subject to refinement by FY 1978 R&D.) (Five-year EPI cost, $149 M; annual maintenance thereafter, $15 M.)

i. Research and Development

Enhance to provide for intensive research on possible blast shelter systems. (Five-year cost, $80 M; annual maintenance, $16 M.)

4. Surge Actions

Actions required during a one- to two-week surge period to realize the full lifesaving potential of Program D include evacuating some 112 M persons from metropolitan and other risk areas (assumes 80 percent evacuation); reconfiguring peacetime wholesale/retail food distribution patterns to support evacuees in host areas; upgrading protection of some 400,000 buildings; training about 600,000 shelter managers; and placing water containers and other stocks in upgraded and other fallout-protected facilities in host areas (food would have to be procured locally).

5. Costs

Five-year cost (1979 dollars)	$1,620 M
Average annual cost, FY 1979-1983	$ 325 M
FY 1979 cost	$ 140 M
Annual cost after FY 1983	$ 200 M

E. PROGRAM E--CRISIS EVACUATION CAPABILITY INCLUDING PROVISION OF MODERATE (15 psi) BLAST PROTECTION FOR EVACUEES AND HOST AREA RESIDENTS; USE OF BEST-AVAILABLE NEARBY SHELTER IF CRISIS EVACUATION PLANS ARE NOT EXECUTED

1. Key Feature

Provides crisis evacuation capability to enhance population survival should a severe crisis lead to massive attack, while maintaining a hedge for in-place protection.

2. Description

This program is similar to Program D (basic crisis evacuation capability, with in-place protection hedge if time or circumstances preclude evacuation), except it provides expedient shelters with moderate (15 psi) blast protection for both evacuees and host area residents. The procurement and stockpiling of materiel over the next five years would permit construction during a one- or two-week surge period. Evacuees would be distributed somewhat less widely than in Program D, easing problems of logistic support, and all shelter stocks needed are purchased and stockpiled in host areas. This program provides for constructing 55-psi expedient shelters for key workers expected to commute into risk areas, with materiel procured in peacetime.

3. Detailed Program Description

The following elements are added to those in Program D to provide a higher-confidence crisis evacuation capability:

a. Materiel for Crisis Development of Shelter

Procure in peacetime and stockpile materiel for crisis construction of 15-psi expedient shelters for 112 M evacuees and 50 M residents, excluding 43 M persons living outside of towns (162 M x $50 = $8,100 M); also for 55-psi blast protection for key workers expected to commute into risk areas (9 M x $100 = $900 M). (Five-year cost, $9,000 M; annual maintenance, $45 M.)

b. Shelter Stocking

Procure and store in host areas full complement of shelter stocks (water containers, sanitation kits, food, medical supplies) for approximately 195 M persons (excludes estimated 28 M who decline to evacuate risk areas) ($5 x 195 M = $975 M). Procure ventilation kits for expedient shelter spaces ($1.15 x 162 M = $186 M).

4. Surge Actions

Actions required during a one- to two-week surge period to realize the full lifesaving potential of Program E include evacuating some 112 M persons from risk areas; developing 15-psi expedient shelters for some 162 M evacuees and residents of smaller cities and towns, using pre-stocked materiel and detailed plans prepared in advance; developing 55-psi blast protection in risk areas for 9 M key workers, using pre-stocked materiel; training shelter managers; and placing stocks and ventilation kits in shelters.

5. Costs

Five-year cost (1979 dollars)	$11,600 M
Average annual cost, FY 1979-1983	$ 2,300 M
FY 1979 cost	$ 145 M
Annual cost after FY 1983	$ 340 M

F. PROGRAM F--CONSTRUCTION OF BLAST SHELTERS (100-psi) IN RISK AREAS, FALLOUT SLANTING IN NON-RISK AREAS

1. Key Feature

Maximizes population survival under conditions of an attack occurring with only minutes (to perhaps a day) of warning.

2. Description

This program provides 100-psi blast shelters in risk areas, high-performance warning, ample shelter stocks, and all other elements of a civil defense system capable of functioning with only minutes of warning. No crisis buildup (surge) actions are required.

3. Detailed Program Description

a. Shelter Construction

Blast shelters (100-psi) are constructed in risk areas ($350 x 150 M spaces = $53,500 M), and fallout protection is developed by slanting in non-risk areas ($25 x 10 M spaces = $250 M).

b. Warning

A radio warning system is deployed, including home receivers ($2,200 M).

Other capabilities and systems (e.g., Shelter Stocks, Direction and Control, Radiological Defense) are developed at levels commensurate with the large investment in shelters.

Note that a large-scale program based on urban blast shelters would require at least two years' intensive R&D prior to initial deployment.

4. Costs

Five-year cost (1979 dollars)	$61,600 M
Average annual cost	$12,300 M
FY 1979 cost	$ 175 M
Annual cost after fifth year	$ 1,420 M

G. OPTIONAL ADDITIONS TO PROGRAMS

1. Option 1--Systematic Development of Additional Shelter in New Construction

a. Key Feature

Improves capability for in-place protection over the long term, permitting reduced reliance in the future on crisis evacuation. (Note: This is not dissimilar to some descriptions of the current Soviet program and rationale.)

b. Description

Fallout protection and (in risk areas) 25-psi blast protection would be incorporated in new construction by "slanting" design techniques, to enhance capabilities for in-place protection over the long term. The cost would be substantially less than for single-purpose shelters. To enhance credibility and effectiveness, these spaces would be stocked with water, food, and other supplies as they became available.

c. Detailed Program Description

(1) Shelter Construction

To develop a steadily improving shelter posture over the longer term, incorporate shelter in new construction using "slanting" design techniques: in risk areas, develop 40 M 25-psi blast shelter spaces by 1985, at $100 (and 150 M spaces by year 2000); in non-risk areas, develop 10 M PF-100 fallout shelter spaces by 1985, at $25 (55 M spaces by year

2000). To generate additional shelter at these rates would require legislation making incorporation of shelter in new construction mandatory, as is the case in a number of European countries. (Five-year cost, $4,250 M.)

(2) Shelter Stocking

Provide full stocks for each of the 50 M slanted spaces developed (food, water, sanitation, medical) at $5/space. (Five-year cost, $250 M.)

d. Performance

Analyses indicate that the initial five years of shelter slanting would add survivors amounting to about 10 percent of the U.S. population, assuming in-place sheltering against a mid-1980s countervalue attack, with an additional increment of about 10 percent of additional survivors for each five years the program is implemented.

e. Costs

Total program cost to complete	$20,000 M
Five-year cost (1979 dollars)	$ 4,500 M
Annual cost	$ 900 M

2. Option 2--One-Year Intensive CD Buildup

a. Key Feature

Maintains the option to enhance protection capabilities by massive expenditures over a period of about a year. Performance would be much lower than desired should attack occur substantially earlier than the end of the year assumed available for buildup.

b. Description

A one-year intensive buildup of civil defense capabilities involving procurement during the year of the materiel required for crisis construction of expedient shelters, plus detailed planning for such construction. Should the year of increased tension culminate in a severe crisis, the expedient shelters could be constructed in a one- to two-week period, resulting in good blast and fallout protection. Shelter stocks would also be procured during the year of intensive buildup, and steps would be taken to improve supporting operational capabilities as much as possible in the time available.

Details of this option will be developed in the FY 1978-1979 R&D program. This option could be implemented in FY 1981 or thereafter, should the international situation change sharply for the worse (analogous to British actions to improve CD capabilities following the Munich crisis in September 1938).

c. Detailed Program Description

While concepts and approaches for the intensive buildup have not yet been developed in detail, it is anticipated that they would provide generally for making low-cost but detailed preparations to enhance protective capabilities as rapidly as possible after decision to commence the buildup. They may include (1) standby contracts or similar arrangements for procuring massive amounts of construction materiel for expedient shelters and stockpiling them throughout the country; (2) standby contracts or other arrangements for procuring shelter supplies on a highly accelerated basis, and stockpiling them; (3) arrangements for massive training, on a nationwide basis, of Radiological Monitors and Shelter Managers and of the public at large; (4) arrangements to protect additional broadcast stations; and (5) related actions to improve supporting operational capabilities. Should a crisis occur at the end of the intensive buildup period, expedient shelters would be constructed pursuant to the detailed local plans developed

earlier, relying on mobilization of the construction industry supplemented by citizen effort.

d. Performance

Analysis indicates that if 55-psi blast protection is developed in risk areas, and PF-200 fallout protection in host areas, during a surge period at the end of the one-year buildup, total survival would be about 84 percent of the U.S. population.

e. Costs (One-time Cost if Option Implemented)

Materiel for expedient shelter in risk and non-risk areas	$18,000 M
Shelter stocks ($5 x 220 M)	$ 1,000 M

Appendix D

LEGISLATIVE REQUIREMENTS

Legislative action would be needed to provide: (1) federal emergency powers for civil defense operations during periods of intense crisis and of attack; (2) authority for developing blast and fallout shelters should such an option be selected.

A. EMERGENCY POWERS

The emergency powers formerly contained in Title III of the Federal Civil Defense Act expired June 30, 1974, and have not been reenacted. These provided for declaration of a state of civil defense emergency upon a finding that an attack has occurred or was "anticipated," which means expected immediately. The law authorized making the resources of the Federal Government available to assist state and local governments during such an emergency, including requisitioning materials and facilities needed for civil defense purposes, providing financial assistance for the relief of civilians in want as the result of an attack, and related emergency actions.

The emergency powers provisions previously available would not provide for a civil "chain of command" from the President to governors and local chief executives. However, experience in 1861, 1917, and 1941 strongly suggests that state and local executives would do everything in their power to support the President.

The former civil defense emergency provisions could be invoked only after a finding that attack upon the United States had occurred or was "anticipated." They would not be available during other crises where the probability of attack appeared to depend on the outcome of negotiations

during a crisis. To be able to evacuate cities, construct expedient shelters on a large scale, or take other extraordinary and expensive actions during such a period, it would be desirable to enact emergency powers which could be applied in a period of severe crisis. A DCPA research project is currently developing proposed legislation of this type.

B. LEGISLATION FOR DEVELOPMENT OF BLAST AND FALLOUT SHELTERS

A civil defense program which provided for peacetime actions to build shelters, or to incorporate shelter in new construction, would require some new legislative authority:

- Programs providing for peacetime construction of single-purpose blast shelters (i.e., Program F) would require legislation (including powers akin to eminent domain) to assure that blast shelters would be constructed where they could be occupied on short notice by the population.
- Programs incorporating blast and fallout protection in new construction (i.e., Option 1) would require legislation authority to assure that the number of shelters needed would be constructed over the next two decades. Current analyses indicate that it would be necessary to require incorporation of shelter in suitably-located new construction, i.e., that financial incentives alone would not be sufficient. (Shelter incentive legislation which was not mandatory was introduced as part of the more intensive civil defense program of the 1960s; it was passed by the House in 1963 but later died in the Senate.)

Some device would also be needed to authorize reimbursement of the incremental costs for shelter. Should an option providing for construction of new shelters be selected, proposed legislation could be developed after examination in detail of approaches in various European countries for shelter development.

Appendix E

CIVIL DEFENSE:
SOME ASPECTS OF CREDIBILITY AND PUBLIC ACCEPTANCE

November 15, 1977

Jiri Nehnevajsa

University of Pittsburgh
University Center for Urban Research

A PREPARATORY NOTE

As an aspect of the Civil Defense Workshop, organized by System Planning Corporation under the leadership of E. C. Aldridge, Jr., and Roger Sullivan, some of the workshop members constituted themselves as a smaller social science panel.

The group met on two occasions to discuss issues which are specifically addressed in this paper. The contributions of individual members of this panel were many and of great importance. This appendix is a summary of the discussions though it may not accurately reflect all the viewpoints presented. Therefore, these colleagues cannot be held responsible for errors of omission or commission, though they deserve the fullest credit for those insights which might prove of value.

In this context, the contributions of the following colleagues who attended both or either one of the social science panel sessions are explicitly and gratefully recognized:

Professor Joe Bohlen
Iowa State University

Dr. James O. Buchanan
DCPA

Mr. William Chenault
Human Sciences Research, Inc.

Dr. William Chipman
DCPA

LTC A. F. Czajkowski
OASD (PA&E)

Dr. Russell Dynes
American Sociological Association

Dr. John A. Eisele
OASD (PA&E)

Dr. John Eley
Federal Preparedness Agency

Ms. Barbara Evans
DCPA

Mr. Ralph Garrett
DCPA

Professor Leon Goure
Center for Advanced International Studies

Professor Eugene Haas
University of Colorado

Mr. Clifford McLain
DCPA

Mr. Jeffrey Ranney
System Planning Corporation

Mr. Ren F. Read
Boulder, Colorado

Mr. Joel Resnick
OASD (PA&E)

Mr. Tony Stigliano
Far West Laboratory

Dr. Roger Sullivan
System Planning Corporation

Jiri Nehnevajsa

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I. INTRODUCTION

What Civil Defense programs would give good confidence of total survival of half to two-thirds of the U.S. population in a large-scale, mid-1980s attack occurring after a crisis which permitted a surge period for Civil Defense of one to two weeks?

In the broadest sense, the issues concerning Civil Defense programs must be considered against several crucial criteria:

- The potential deterrent value of such efforts
- The extent to which Civil Defense measures might enhance, or degrade, crisis stability
- The extent to which the programs are, in effect, a form of national "insurance" against the possible failure of deterrence
- The extent to which such programs--or, for that matter, their absence in this case--induce reductions in arms competition.

Apart from their potential contribution to deterrence, a matter we do not explicitly address here, or from their insurance worth against the plausible failure of deterrence, an issue we also do not consider explicitly, it is our judgment that preparedness systems which would enhance the protection of our people against the hazards of nuclear war in a credible and realistic manner would tend to have stabilizing effects on future crisis environments and on our nation's capacity to maintain more open options in responding to crises and their changing or evolving trajectories.

We have considered the question with respect to program credibility and public acceptability or acceptance. Rather than addressing a specific, well-defined program and its presumed resultant Civil Defense posture, we have dealt with the more generic issues as they apply to a whole class of

programs and program components, especially with a focus on Crisis Relocation possibilities.

However, we have taken into account several major options for future Civil Defense programs, including specifically the following:

- Best extension of current Civil Defense program (in-place protection primarily against fallout)
- Crisis evacuation capability (fallout protection for evacuees); use best-available nearby shelter if crisis evacuation plans not executed
- Shelter "slanted" in new construction, with crisis evacuation capability (fallout protection) for nearer term protection
- Crisis evacuation capability (less dispersed than in the second program above, but with 15-psi blast protection); best-available shelter if crisis evacuation plans not executed
- Shelter "slanted" in new construction, with crisis evacuation (15-psi protection) for nearer term protection
- Blast shelters in risk areas, fallout slanting in non-risk areas.

In this brief appendix, we first outline some of the major contextual conclusions--those which bear on the public's responses to Civil Defense in general, to national defense, and to, in effect, other major government programs.

Second, we sketch out some of the main factors which we conclude to have significant bearings on credibility of Crisis Relocation in particular.

Third, we turn our attention to the more specific questions of Crisis Relocation Programs (CRP) and we present our basic conclusions.

Finally, we identify the kinds of questions and criticisms most likely to be levied against CRP when the planning efforts are launched in peacetime environments. The directions in which some of the answers to such questions and criticisms might lie also have been stated, but merely as brief indications rather than in detail or in any form that could be considered definitive.

We have not viewed it to be our major task to assess the budgetary implications of alternative programs. Thus, we have neither explicitly nor

by implication placed specific limits on patterns of Civil Defense spending over the coming years. Additional acceptance and credibility issues might well be raised depending on the magnitude of Civil Defense programs, especially were the current levels of expenditures suddenly increased, say, tenfold or more and the trends would amount to decreased funding for other social programs of the Government.

We have not considered explicitly the implications for the value of various Civil Defense programs if SALT agreements, in the coming few years, were to lead to major reductions in armaments. Nor did we explicitly undertake an assessment of the worth of particular Civil Defense systems geared against major nuclear war in the face of small nuclear attacks or against nuclear blackmail by non-state adversaries.

Finally, we have in no way systematically assessed the credibility and acceptability of Civil Defense programs to the President, the Secretary of Defense, other key members of the Administration, or to the Congress of the United States.

II. SOME CONTEXTUAL CONCLUSIONS

Civil Defense issues have low saliency to the nation's public and to policymakers at state as well as Federal levels. Thus, few public demands exist for new programs. However, this assessment is valid almost entirely during peacetime or normalcy periods.

Over time, civil preparedness experience and data on public reactions demonstrate major and strategically important shifts in both attitudes and public behavior during crisis periods. Historically, crisis situations have been of relatively short durations and of rather low frequency of occurrence. It does not follow that the future will necessarily parallel the past; thus, more protracted crises seem plausible. Greater frequencies of crises, each perhaps subsidizing temporarily, also appear possible.

This leads us to one important conclusion: what we now term to be a "peacetime environment" may itself change into a "normalcy" which might be marked by higher levels of tension and enhanced public as well as governmental sensitivity to the possibilities of a nuclear confrontation. Hence, we can imagine a world situation of the 1980s in which something of the order of a "chronic crisis" prevails, or something akin to a lasting "crisis-expectancy" is in evidence. This would mean that the attitudes and reactions of the public in this new "normalcy" environment would be more like the past reactions and attitudes under crisis conditions.

Basically, we must postulate three key types of environments. This conceptualization is one not because of the need for a taxonomy but because of the distinctly different patterns of attitudes and behavior in these alternative contexts.

One such environment is that of "normalcy." By this we mean a period not unlike the current world situation. It may be characterized by minor ups and downs in the international level of tensions; but there is a low perception of war probabilities, and a sense of relative "peace."

In this environment, demands on the part of the public for Civil Defense preparedness are not likely; favorable attitudes, however, are maintained though there is very little in the way of a public "follow through." Educational efforts might produce salutory results but these, due to low saliency of the issues and the inexorable drift of time, are likely to be of short duration at best. In this regard then, educational efforts of whatever nature would at best attune the public to a heightened receptivity of appropriate activities should a crisis come about.

The second environment is one of a "crisis." This, indeed, is a situation in which the level of international tensions has increased sharply; the expectations of a possible conflict have risen; the mass media, in fact, so report and interpret the global environment.

Clearly, the public's shift from "normalcy" to "crisis" perceptions might be preceded by the Government's realization of a more acute threat; or might, as the case may be, occur at just about the same time when the Government's assessment of the threat has also increased.

In this environment, civil preparedness measures acquire saliency. The public response manifests itself in requests for information about appropriate measures to take; educational efforts to enlighten the public to the various dimensions of the problem as well as to the effective ways of coping with the situation are likely to be both demanded and highly effective.

It is, in fact, an environment in which the public expects to discover what preparedness systems exist and how they might function, and the public does expect that such systems actually exist and can, to an extent, be made to work.

A crisis period of the postulated type is one in which media reporting helps, or hinders, effective preparations for coping; in which discussions among family members, with friends, co-workers and neighbors are not infrequently focused on the crisis itself and its possible outcomes; in which facts as much as distortions, information from official sources as much as rumor, influence both attitudes and behavior significantly.

The third environment is one of the "surge" period. We mean by this a situation in which the Federal Government itself has begun taking specific prudent actions, and in which the public has been informed (by Government spokesmen directly or through media reports, including "leaks") that such actions are underway.

The basic propositions regarding attitudes and behavior of the public in the "crisis" environment hold even more strongly during such a "surge" period. Clearly, there would also be an expectation that prudent actions by the Government include actions to protect the nation's populace and property.

The basic pattern then is grounded in a simple observation: the public has maintained relatively high confidence in the Government, especially in the domain of national defense issues. Under "normalcy," our people go about their own "normalcy" business on the assumption that the Government knows reasonably well what it is doing and that it is acting in the public interest. Thus, not much happens in the way of clamor for efforts to deal with unpleasant, hopefully avoidable, and somewhat unlikely international hazards.

In a crisis, and even more so in what we termed to be a "surge" period, the public expects to put to use the systems which it believes the Government has planned for, installed, and made workable. There then emerges an altogether legitimate demand for clearcut answers as to the best ways of coping with whatever may come.

A final, though extremely important, point regarding the basic issues must be emphasized. It is a simple fact of profound consequence that

actions under normalcy conditions are often quite different from actions in a crisis environment. This has the altogether fundamental implication that many of the things, given a peacetime atmosphere and attitudinal and behavioral ambience of the nation, which Civil Defense must be able, and prepared to do in an actual crisis might look "wrong" or "foolish" or "unfeasible" in a peacetime setting.

Thus, in a deep sense, all programs (and their components) have to be considered along two rather different, and not always congruent, dimensions: how the system would perform in an actual crisis, and how the crisis-oriented system would look when planned for or developed in a peacetime environment.

Within this broader framework, some peacetime programs and efforts have a relatively easy sailing in our body politic:

1. Programs which minimally disrupt the normalcy of our society and thus minimally affect the institutionally, relatively routinized behavior of our people
2. Programs which do not dramatically divert the existing resources into untested or different channels. (Yet, to give rough indications regarding Civil Defense: if we spend $100 million per year actually, our people think that we spend about $700 million, and believe that we ought to spend about $1.4 billion annually.)
3. Programs which do not require new revenues to be raised
4. Programs which do not increase Federal centralization and further bureaucratization of life

In turn, all peacetime programs and efforts have been, at least in some (though significant) measure, degraded by the dramatic rhetoric--often by the highest officials of the land--which have portrayed a nuclear war as almost entirely non-survivable, impossible to contemplate, or even as the "end of the world" event.

A continuation of such an approach to the serious possibility of creating programs and circumstances facilitating national survival would clearly undermine credibility of future efforts as well.

Crisis-activated programs and efforts, however, are not so constrained:

1. Programs which make it possible for people to be effectively prepared to deal with possible disruptions or normalcy would be preferred generally over activities which would attempt to pretend that "normal" conditions could be maintained even should the crisis get out of hand.
2. The public would accept, and even expect, the diversion of resources, including money and manpower, into operationalization of crisis-activatable readiness plans.
3. Federal leadership, rather than decentralization, would be both expected and desired.

In addition to the general factors already mentioned, the following observations have a direct bearing on the credibility of CRP; and they also apply to other major Civil Defense systems.

1. A crisis situation increases anxiety because it increases uncertainty (as to the future, as to what to do now, as to when to take what measures, and so on). Those relocation programs which could reduce uncertainty from the very outset, and throughout the duration of the crisis, will be more credible than will other options.
2. It is especially important that there evolve an awareness in our public that CRP includes plans to provide information about understandable, simple and effective actions for our people to take along with a clear and honest explanation of the rationale for such action in preference over other possible courses of behavior.
3. It is essential that, in fact, such information be provided to our people in a crisis environment and that such information message be responsive to the different stages of the crisis (pre-surge), to the surge environment and to the consequences and implications of the futures which then would face the nation.
4. Programs which will maximize organizational, institutional and cultural continuities are preferable over programs which do not do so or do so less.
5. Programs which make provisions for the maximum outflow of relocatees in the shortest possible time upon a Presidential directive will prove more credible than programs which might plan for uniform (over time) phasing of evacuation.
6. Programs which maximize voluntary compliance and voluntary response, backed up by simple and rational provisions for Government intervention on an as-needed basis, will be more

credible than programs which are grounded in a fabric of less flexible rules, regulations and requirements.

7. Credibility of CRP will be enhanced by the availability of at least a minimal credible in-place Civil Defense capability. This is largely so because Americans are likely to question the notion that the President would actually order crisis relocation under most circumstances, if at all. Furthermore, many Americans will remain convinced that there exist circumstances in which a nuclear war could, or would, begin without a crisis build-up period or with a build-up of such duration that relocation would be impossible even if desired.

8. Credibility of both evacuation systems and of in-place sheltering would be enhanced were, at least, "essential" or "key" workers provided with adequate blast shelters.

9. Credibility of CRP in the peacetime planning environment will be significantly enhanced if authoritative, simple, consistent answers can be given by a credible source to questions and criticisms raised by the media, by various interest groups and organizations and by the members of the general public.

10. Credibility will most likely be degraded by attempts at program oversell; that is, public communications which would seek to stress crisis relocation is the only possible Civil Defense posture, or the only posture which will increase survival chances of our people.

11. Credibility, in turn, will be enhanced by media reports about actual host areas that would be prepared, or will have become prepared, to receive evacuees.

III. SOME MAJOR CONCLUSIONS

The conclusions which we have reached focus on Crisis Relocation Programs (CRP). This is done in light of the fact that, apart from the "strategic evacuation" concepts of the early 1950s (when the bomber threat capabilities of the adversary allowed for a warning period of many hours even in tactical terms), the doctrine which might promulgate, plan for, and activate actual relocation is a new one, and that it, therefore, presents questions which in-place Civil Defense systems either cannot raise or raise in a different manner.

A. GENERAL CONCLUSIONS

1. We found no insurmountable problems in terms of public credibility and social acceptance of CRP. Thus we conclude that there exist program configurations consisting of credible and acceptable components and that the overall program so resulting, too, can be credible, acceptable, and accepted. But we cannot produce direct, hard evidence to fully substantiate our conclusion in this regard.

2. A good educational effort could, indeed, enhance the acceptance, and credibility of such programs. In peacetime circumstances, we view such a "good educational effort" to be a relatively low key undertaking. It would serve mainly to sensitize our people to more generic classes of coping actions against a variety of hazards, including the hazards of nuclear war. It would serve chiefly to enhance the public's receptivity to intensive educational and informational efforts in a crisis and during a surge period. It would, indeed, avail itself of existing organizational and institutional opportunities (Boy Scouts, Girl Scouts, school systems and the like) to help disseminate knowledge and skills appropriate in the individual, family and community response to disasters.

3. The belief by the public that crisis relocation is not the only option, or the only permament option, would also affect credibility in a positive manner. Thus, CRP could be viewed also as providing the nation with a program of considerable effectiveness while other options remain open (in-place blast shelters) or while other options would take a great deal of time (as blast slanting might) to generate a reasonably adequate system and/or would cost too much (and of the blast protection alternatives) unless the costs were spread over many years.

4. Credible CRP plans would also incorporate a legislative grounded possibility for Government intervention measures (price freeze, limiting purchases, limiting withdrawal of savings or general withdrawals, etc.). But the premise remains that voluntary restraints would be sought, encouraged and taught, and only actual experience with problems resulting from ineffective response by the citizens would lead to the use of more formal measures. This could prove to be a source of difficulties as well. An "actual experience" with problems resulting from "ineffective response" which could be used as a trigger to more formal Government intervention could easily come too late to do much good. The relative risks, in this regard, have to be further evaluated. Yet, we expect predominant voluntary compliance in any case.

5. We feel that the most serious consideration must be given to the possibility of organizational relocation rather than to relocation site assignments which are based on such factors as ZIP Codes, phone number prefixes or the like.

 The extent to which organizational, institutional and cultural continuities can be maintained, and even strengthened, will bear on acceptability of relocation plans, and, indeed, their eventual efficacy.

 Whether the nation's employers, perhaps the prototypical organizational form relevant to our concern, would be willing to participate actively in a program in which they would share a significant burden of responsibility for the eventual success of relocation, and how much they would participate, remains to be determined. But their basic responses should prove to be similar to those of the general public's or to those of owners of buildings which were surveyed as potential shelters during the respective program of the 1960s. Our views on this are somewhat split, but this is a consequence of having less than adequate information on the basis of which we could arrive at a documentable judgment.

 Admittedly, such planning would prove to be quite complicated. But the potential payoff in national cohesion, in recoverability should the crisis end in hostilities, and in overall manageability of the system promises considerable payoff.

B. BASIC COMPLIANCE

1. We expect overwhelming compliant action with a Presidential order to evacuate. This compliance, in turn, will be the greater:

 a. the more it is known that evacuation plans exist

 b. the more people recognize that they stand a better chance to survive if they leave major risk areas rather than stay in place

 c. the more popular and respected the President giving the order.

2. We expect no significant differences in compliance with relocation directives on the part of different social and economic groups of our society except insofar as communication and transportation are involved.

 Data from surveys show consistently that our population is quite homogeneous in reactions with respect to issues of Civil Defense regardless of socio-economic or other otherwise relevant cultural distinctions.

 Experiences from natural disasters in which evacuation played an important role do not suggest differences in the relocation movement that would be patterned along socio-economic or cultural lines.

 We have, therefore, no reason to believe that CRP would display system characteristics different from those of other Civil Defense programs or from the natural disaster behavioral experiences.

3. We expect that most people, once evacuation orders have been issued, will attempt to get out of the risk areas as fast and as soon as possible.

4. Therefore, we feel that most credible CRP involves provisions to maximize the outflow of citizens in the shortest possible time rather than planning for uniform pattern of departures over some required period of days.

 Many cities of the nation, not to speak of smaller towns (let us say those of 50,000 inhabitants or less) could be evacuated in less than 24 hours. Only a few of the major metropolitan complexes present special problems in this regard (New York, Washington, Philadelphia, Los Angeles-Long Beach, Boston, Chicago, Detroit, and San Francisco-Oakland). Perhaps over 60 percent of the residents could, in fact, be evacuated during the first 24 hours even in these complex areas.

5. If we expect compliance with relocation directives to be very high and the strongest motivations driving actual outflow of people

as fast and as soon as possible, we also consider relocation movement beyond the initial wave (perhaps of 12-24 hour duration) to be strongly affected by the trajectory of the crisis itself. Thus the incentives to evacuate for those who were unable to move out right away (12-24 hours) will depend on their assessment of the international environment as it keeps evolving.

Thus a crisis which is seen subsiding will lead to lessening the outflow of relocatees, and will, in fact, induce attempts at returning to the risk area on the part of those who may have evacuated already. A crisis which is seen intense and stable, or actually further escalating, will further the incentive to relocate.

Statements by Government officials as well as media reports will therefore have almost a determining bearing on the overall traceline of the relocation process.

Many risk area residents may be worried about property loss and damage during their absence (vandalism, burglary, fire, flooding and the like) and this may work as a potentially significant disincentive to comply with relocation directives. Thus, it may be prudent to consider appropriate measures of property protection, including the possibility of a Federally subsidized evacuation insurance, not unlike flood insurance programs now in existence.

C. KEY WORKERS

1. We think that further analysis will be needed of the implications of relocating key workers and of the need to maintain, with key workers commuting from host areas nearby, key facilities of the risk area in minimal operating conditions.

2. Provisions for special incentives (of which "hazard pay" might be an example) merit consideration as do procedures for rapid reunion of the workers and their families.

3. Furthermore, provisions to protect key workers against primary weapons effects as well as against fallout would prove prudent and would enhance the credibility of the program.

4. A relocation program which would maximize the dispersion of our people, and thus minimize population density (by relocation to very small municipalities and farms) might well run into commuting distance difficulties. The need for adequate blast protection for essential workers, and perhaps their families, would require even more consideration than would otherwise be the case.

 We are not seeking to assess the technical desirability of such protection around the city periphery as against truly in-place

protection. But provisions of these types merit attention from the standpoint of designing a credible, and actually viable, system which would permit massive population relocation while maintaining operation of key city facilities.

In turn, a program which would simply imply a total shutdown of our cities upon relocation would not be very credible. Many questions would be raised regarding economic costs of start-ups, the problems of the non-relocatables or those unwilling to relocate, and of all the risks that would be associated with the nation's cities essentially at a standstill.

D. SPONTANEOUS EVACUATION

1. If the trajectory of planned-for and directed relocation is scenario-dependent (at least beyond the initial outflow of evacuees), so is spontaneous evacuation before a Presidential directive would be issued.

 This means that we might anticipate spontaneous crisis-triggered evacuation by 10 to 30 percent of the risk area population. But further studies of spontaneous evacuation prospects are essential.

2. Such spontaneous evacuation will be greater the more the possibility of evacuation by Presidential directive is known, the more sudden the build-up, the more acute the crisis, and the more deteriorating the crisis trajectory appears to be. A public education program, too, would affect the timing, nature and magnitude of spontaneous evacuation.

3. With rumors about, or news speculation of, impending directives to evacuate, something quite likely some 24-48 hours prior to an actual directive or the complete authoritative Presidential denial of such intentions, spontaneous evacuation is likely to peak. Provisions for effective traffic control will be quite desirable as an accompaniment of pre-surge planning.

4. Spontaneous evacuation is more likely to characterize the more well-to-do segments of our society. Such individuals and families may have better relocation options than those CRP would explicitly provide for, and might be more prone to evacuate spontaneously for these reasons as well. Disproportionate numbers of spontaneous evacuees will come from these societal segments. This, in itself, need have little effect on the overall program or on its planning.

 To the extent to which key workers are in the middle or upper income brackets, chances are rather good that many will be among the early evacuees.

5. Before actual relocation directives would be issued, spontaneous evacuation will develop a rhythm of its own: the visibility of

movement of one's friends, coworkers and neighbors would reenforce the desire to relocate; the evidence that others are staying put would, in turn, reenforce the decision to remain.

In any event, plans will be needed for the manner in which Government would communicate with the public so as to encourage, or discourage, spontaneous outflow of residents from the risk areas.

E. THE NON-EVACUEES

1. We anticipate that some segments of the population may be non-evacuatable. This may include patients in intensive care and, perhaps, other hospitalized Americans. Hospital administrators and members of the medical profession may have to be consulted on this matter. It may also include prison inmates as well as (some) disturbed mental patients.

2. Others may not be willing to relocate, or otherwise may not do so even though they would be "evacuatable" in principle. We think that the non-evacuees (apart from the non-evacuatables) might include disproportionate numbers of the sick, the disabled and handicapped, people with mental problems, alcoholics, drug addicts, and some of the lonely elderly.

3. We anticipate that the non-evacuees of other categories than the above may well include the small proportion of our people who are convinced that no survival in nuclear war is possible at all, or that nuclear war simply will not come regardless, and those who feel that even were they to survive an attack, the post-attack world would be unlivable or they would not want to live in it.

 Furthermore, there are likely to be some (if few) Americans who will become convinced, in a scenario-dependent context, that the President may have miscalculated the risks or that the media may have done so or both. They, too, might not evacuate even under a Presidential directive in an otherwise threatening environment.

4. We anticipate that some professional thieves and burglars will be among the non-evacuees. Also, it is likely that some political terrorists might not evacuate in order to be in a position to inflict damage on the relatively undefended and unguarded cities. These need not be terrorists or saboteurs acting in collusion with, or in support of, the adversary. Rather, we can envisage the activities of a small criminal element not at all concerned with whatever "cause" may be at stake but simply availing itself of the opportunities presented by the circumstances.

F. PHASED RELOCATION

1. It is quite plausible that any attempt to control or phase the outflow of risk area residents would create some problems, perhaps even significant ones. It may turn out to be a self-defeating proposition.

 It seems, however, that phased relocation would prove necessary, if at all, for only a few of the largest metropolitan areas of the country. The planning problem may be less serious than it appears to be on its face value.

2. A program requiring no phasing whatsoever might possibly be feasible generally. This means that movement of specific individuals and families out of the risk areas would occur essentially at the time of their choosing. The system would then rely only on rapid and accurate communication to the public about conditions of egress routes and of the routes toward the host areas. The presumption is that reports of major congestion or stoppages would deter further movement significantly and that many people would delay their departure time in light of such information so that the overall system would, to that extent, be somewhat self-policing. We are uncertain whether an approach of this kind would be workable but it merits further consideration.

3. In cities and risk areas in which relocation cannot be completed without some provisions for phasing, we conclude that randomization (e.g., license plate numbers or the like) would be preferable over prioritization (e.g., move "key workers" first or last, move some other groups first or last, etc.).

 Insofar as phased relocation would be necessary in at least some risk areas, we consider it relevant to suggest the need for public enlightenment, or, if you wish, "educational conditioning."

 Such educational effort would then be aimed at an adequate explanation of, and justification for, phasing; its salutory implications for individual as well as collective survival; and the problematic consequences of non-compliance with the eventual relocation instructions predicated on phased movement.

 In any event, since even the preferred "randomization" option is fraught with difficulties especially if we seek to maximize the egress of the greatest number of people in the shortest possible time, further serious analysis of alternatives will be both prudent and necessary.

G. EXPEDIENT SHELTER

1. We recognize that expedient shelter, from a technical standpoint, may provide excellent protection against fallout; and that such shelters can provide significant blast protection.

2. We recognize that experience and actual experiments show that such expedient shelters can be constructed by families in a matter of hours and, for the most part, with equipment and supplies at hand.

3. However, we do not think that a credible Civil Defense posture is likely to be generated in peacetime by reliance on expedient shelter as the key component of the program. Expedient shelter, however, may indeed be a partial, though limited, component of a national program especially in the relocated mode; much less so under in-place options.

4. At the same time, we do not doubt that the expedient shelter approach can work in principle. It would also be complied with and acted upon by out people but only under actual crisis conditions.

5. The factors of climate and soil conditions, availability of tools and, of course, of wood (or other appropriate materials) will be significant determinants of the operational applicability of the expedient shelter concept. We do not have sufficient data on hand to reach a conclusion.

6. Indeed, another perspective on expedient shelter permits it to be viewed as a kind of potentially effective stop-gap measure while the nation is in the process of considering other alternatives, or while a better system (blast slanting, blast shelter construction) is in the process of development and/or implementation.

7. The role of expedient shelter remains a matter of some controversy. For instance, whether or not there would be any chance of favorable Congressional action (or acceptance by our Administration) of a program which involves expedient shelter to a significant degree. In view of the legitimate uncertainty among those of us who have considered the issue, further analysis and assessment needs to be undertaken of the role such shelters might play in any Civil Defense system.

8. Yet, favorable Congressional action would be more likely if there were a clear Administration decision to recommend, and advocate, a program in which expedient shelter plays an important, if stop-gap, role.

9. With regard to expedient shelter, it is especially important to differentiate between what would prove to be credible in a "peacetime" or "normalcy" activity and what could be accomplished in fact under crisis circumstances.

H. ALTERNATIVE TARGETING

1. We expect that questions will be raised about the likelihood of retargeting on the part of the adversary. It is not our belief that, in fact, the current (or for that matter, the time-frame--to 1985) Soviet doctrine is compatible with maximization of population kill. Yet, be it as it may, the argument that the adversary might

retarget will be made and will prove credible to a good number of Americans. From the vantage point of credibility, it is, therefore, prudent not to plan for crisis relocation so as to create new potential targets.

If urban areas of 100,000 or more (or 50,000 or more) were to be considered risk areas and thus to be evacuated, it would not be advisable to create new urban conglomearates of 100,000 (or 50,000) upon relocation (by moving 75,000 evacuees into a town of 25,000).

2. As much as possible, a credible CRP will diffuse potential target points with an essentially uniform distribution of evacuees across the countryside as its theoretical and, probable in practice, unattainable limit. This means that maximum use needs to be made of the hosting potential of villages and very small towns as well as of the nation's farms.

3. Thus, relocation distance and travel times may be increased relative to those which would be feasible in plans based on relocation to smaller cities. Provisions for aggregate care may simply represent an interstitial phase: that is, a first phase in the relocation effort followed by further dispersion of the relocatees.

4. In this light, special attention needs to be paid to the altogether feasible program to house relocatees in private residences, and to provide (fallout) sheltering for them through a home basement sharing program. This is quite a possibility applicable to at least those states where basements are ample, and where many basements yield significant protection against fallout.

5. In a weapons-rich environment of the 1980s, of course, it may be altogether necessary to provide blast protection, perhaps by expedient shelter, even for relocatees because attack magnitudes could reach such levels that the adversary might be in a position to target out population almost at will regardless of locations.

I. AN IN-PLACE SYSTEM

1. It cannot be assumed that CRP would actually be implemented even under the worst crisis condition. But, it might be activated nonetheless especially in response to Soviet relocations. In any event, the President would be quite reluctant to direct relocation. Furthermore, a crisis may reach an undesirable climax before a decision to relocate is reached, or before relocation is completed. Hence, a credible CRP program also calls for a credible in-place capability.

2. In-place sheltering capability is, furthermore, necessary if there is some segment of the population of key workers in the evacuated risk areas. CRP, therefore, cannot be the only Civil Defense option available to the nation (and, indeed, to the President) so that the program has to be designed as an additional rather than exclusive alternative.

3. Furthermore, we may also consider an adequate CRP to be only a temporary measure. Thus, CRP could be the key to Civil Defense planning while the nation is tooling up, over longer time periods and with more massive expenditures of money and manpower, for more appropriate in-place sheltering by blast slanting and blast shelter construction.

4. Such blast sheltering or blast slanting construction will, of course, not become incompatible with relocation possibilities, so that sound alternative systems might result through the interplay of the major possibilities without premature national commitment to any single one as the only option available.

J. SOME PROBLEMS

1. We expect some problems with runs on food, drugs, money, tools, equipment, gasoline and other supplies in an acute crisis environment. The more so, the more there exists information that evacuation plans are in existence, that the crisis is a major one, that, therefore, the danger of a nuclear confrontation has perceptually increased and that evacuation, or other prudent self-protection measures, may be recommended or ordered by the President.

2. But we anticipate only a few runs on food, drugs or other supplies to be very significant <u>after</u> relocation orders have been issued. However, as we have already pointed out, such problems can be expected if localized, in the crisis period <u>before</u> the actual Presidential action, and especially in response to rumors or media speculations regarding impending, thought not yet actualized, relocation directives.

3. Some localized and sporadic sense of panic and even some actual panic can be anticipated to the extent to which people will feel that the threat is acute, escape routes are unavailable, and no other sensible actions are, or appear to be, on hand. But these are likely to be localized and limited phenomena.

IV. SOME LIKELY QUESTIONS AND CRITICISMS

As one of the important aspects of CRP credibility, we have stressed the capability to answer questions as they arise and to address criticisms as they emerge.

We emphasized that authoritativeness, simplicity and consistency of the communications are the central features of effective messages along with the essentiality for such messages to originate from credible sources.

Here, we outline the likely questions and criticisms concerning CRP--and thus the kinds of issues and problems to which answers, within the framework of the above specifications, must be available and must be disseminated when needed (in response to questions and criticisms).

This is not intended to be an analytic or developmental document in which the actual answers are articulated in detail, or the relevant references to which one might turn for substantiation are provided.

At best, the cursory statements presented following a capsule summary of each of the major arguments are only tentative lines of thought along which appropriate responses can be developed. Furthermore, other arguments may be even more potent than those mentioned here for illustrative purposes only. Thus, we do not claim either sufficient detail, justification, or exhaustiveness of the types of counter-arguments which may prove worthwhile to consider.

1. <u>CRP will simply not work</u>.

 a. This may be addressed in light of the results of studies which show how many people <u>can</u> be relocated.

 b. The evidence from hundreds of evacuations under conditions of natural disasters or threats of natural disasters is similarly highly relevant.

c. Such evidence must also come from highly credible sources if it is to counteract the argument effectively.

2. CRP will not work unless public exercises and drills are organized and held.

 a. Experience derived from natural disasters is salient: non-exercised cities and communities have not found it particularly problematic or difficult to evacuate, often nearly 100 percent, when necessary.

 b. The issue is also usefully addressed by stressing the actual simplicity of actions expected of the general public: getting a few things together, getting into a car or some public means of transportation and going, or being moved to, a designated location or to a place of one's own (relatives, camping sites, summer homes and the like). Such a "system" of simple, just about "weekend-like," responses clearly does not require public exercises.

3. Even if some effectiveness were admitted, CRP will be too expensive to plan for and tool up for.

 a. Annual as well as cumulative cost estimates of the CRP process can best deal with this argument.

 b. Annual and cumulative expenditures per person are also valuable data in this regard.

4. CRP planning may not be too costly, but an actual relocation would spell an economic disaster of intolerable proportions.

 a. Reasonable ranges of estimates of economic losses contingent on n-day stay in evacuated mode, n + x days stay and so on, will be needed; including estimates of the time required to return the economy to its pre-relocation functioning if the crisis were resolved without conflict and relocatees were to return after n, n + x, etc., days.

 b. The issue also involves addressing those provisions which will be integral aspects of CRP to help buffer financial and property losses by individual families.

 c. Source credibility again looms extremely important.

5. CRP is a waste of time and money because the President would never order relocation anyway.

 a. There are, however, possible and credible triggers (such as Soviet evacuation) which might, indeed, make it desirable for the President to direct relocation.

b. This would be ideally answered by the President: that he would like to have such a plan available.

6. The American people will not accept CRP. (That is, will be opposed to it at the level of attitude and, perhaps, action manifest in letters to the President, Congress, the media and the like.)

 a. Survey data since the 1960s show that more than two-thirds of our people would not be opposed to "strategic evacuation" even in times when no such concepts were being promulgated.

 b. Natural disaster experience and evidence shows that people evacuate when they feel they ought to, when asked by the authorities, and no evidence exists to show non-acceptance or relocation in principle.

 c. Some people may well not accept relocation concepts any more than they have accepted any other Civil Defense plan (or posture) or, for that matter, any major defense planning. This may amount to 5 to 10 percent of the populace.

7. American people will not comply with relocation directives.

 a. Evidence from natural disaster studies denies that.

 b. Some non-evacuees will, of course, remain in the risk areas. These will be individual choices in cognizance of problems and consequences of such choices. No program of any kind and on any aspect of national life can expect 100 percent popularity and 100 percent compliance.

8. Host area people will not accept CRP.

 a. Survey results over the years do not show this, on the whole, to be so.

 b. Natural disaster evacuations have created no special "acceptance" problems in host areas. In fact, high cooperativeness has been noted consistently.

 c. Colorado Springs area feasibility studies of CRP show that host area inhabitants would not only accept relocatees (though not necessarily enthusiastically) but would help provide for them, including sharing their homes. But other such tests are needed.

 d. Finally, an important way of approaching such arguments has to do with planning: since some, in fact many, people would move out of risk areas in a nuclear catastrophe anyway and the "host areas" would therefore experience an unstructured, unplanned for, and perhaps chaotic influx of risk-area residents anyway (before attack but certainly upon attack),

is it not preferable to plan for this so that there is better preparedness and understanding of the difficulties involved?

e. In the same sense, it is not impossible to imagine that there could also be some planning to resist the flows of risk-area refugees (in the absence of relocation) or even of relocatees (given CRP and its implementation under Presidential directive). But studies of various crises and disasters show strong cooperativeness and strong altruism so that although such "planned resistance" itself is not impossible to conceive of, it would occur at best in few localities, sporadically, and gain the support of only very small minorities of the residents even in these possible problem communities.

In an actual crisis, furthermore, the cooperative impulse is likely to dominate so forcefully that even peacetime plans to resist the "invasion" by urban dwellers would most likely remain inactivated.

9. CRP makes a nuclear war more thinkable (and thus more likely).

a. A thermonuclear confrontation remains thinkable in that it has a non-zero, perhaps very low, probability. Therefore, the possibility requires some rational thinking and planning regardless of how unwanted such a confrontation may be.

b. Undesirable natural and man-made disasters also occur. It is, in fact, appropriate to make them "thinkable" so that people can be attuned to appropriate behavioral responses should such disasters threaten them. Nuclear war, different in magnitude and overall impact, is one such plausible, and deeply unwanted, man-made disaster.

c. Survey data do not show that preparedness measures make war seem more desirable or more acceptable, more probable or less probable.

10. CRP will prove provocative to the Soviet Union.

a. The Soviets have been spending about 1 billion rubles per year on Civil Defense measures over the recent past. They do not seem to have worried whether it might be "provocative" to the United States.

b. An appropriate interpretation of the term "provocative" is also called for. If it means, as some critics state, that CRP will enhance Soviet desire to launch a war, it is difficult to argue that measures to protect the lives of people would lead them to want to launch a war. If the term "provocative" means that the Soviets might use such rhetoric about U.S.-caused "escalation" of the conflict level, this seems altogether possible. But the evidence of

massive Soviet preparations, including those of the Civil Defense front, forms an effective counter-argument.

c. Survey data over the years, 1963-1972 at least, show that our people do not believe that measures of Civil Defense affect the probability of war (just about two-thirds of the samples feel that such measures "make no difference" one way or another in this regard) or that Civil Defense systems would be provocative (again, two-thirds of respondents see them as making "no difference" along these lines).

11. The money, effort (and manpower) used in CRP (and/or other Civil Defense efforts) is going to be better spent on furthering weapons-based deterrence.

a. The annual Civil Defense expenditures, even under optimal realistic conditions, would not lead to many foregoing opportunities on the weapons front. For example, a $250 million Civil Defense program per year amounts to about two B-1 bombers at current costs.

b. We need strong deterrent forces; but there also exists a Congressional mandate, dating back to the original 1950 Act, that it is the function of Civil Defense to "help protect people and property against nuclear attack." This simple and straightforward mandate has never been altered by Congress nor have changes affecting these dimensions of the mandate been recommended by any President in the intervening 27 years.

12. CRP will make arms control and disarmament negotiations more difficult.

a. Arms control negotiations are difficult no matter how one looks at them if only because of different meanings and interpretations of "parity," different implications--given the configurations of forces--of controls or reductions in this or that capability.

b. The Soviet Union has engaged in a large-scale Civil Defense effort which has been greatly accelerated in the past five years or so. Thus, it would appear that the Soviets have not believed that their Civil Defense programs would jeopardize whatever agreements they might eventually accede to the arms control front.

c. Our European Allies, too, have been engaged in rather impressive Civil Defense efforts as has been Switzerland. They, too, have not considered measures of Civil Defense to be disruptive to the potential furtherance of whatever measures of detente prove feasible.

13. Perhaps we ought to agree with the Soviets--as an aspect of SALT--to limit Civil Defense systems.

a. In this day and age, our people--not Soviet people--are the only hostages to a plausible (if unlikely) nuclear confrontation.

b. The Soviets are unlikely to agree to dismantle their Civil Defense capabilities simply because we have (essentially) none.

c. Analytic studies of the ABM suggest strongly, if not rather conclusively, that maximum stability in the Soviet-American equation might well result if both nations were only lightly armed but heavily defended. We need not adhere to this conclusion in toto; nor do we need to adopt the ABM analogy to the potential Civil Defense programs and the resultant postures. But the argument is sufficiently compelling to warrant careful attention.

14. If we relocate our people, the Soviets will simply "retarget" and attack our people in the relocated mode.

a. The Soviet military doctrine does not, either in the past or at present, call for maximization of population destruction. But such an answer would prove inadequate to the argument which is based, of course, on a perception or on different premises.

b. CRP configurations can be such as to not create additional appetizing targets for the Soviets even if they should wish to maximize population kill.

c. This means, of course, that the population dispersion built into CRP has to pay great attention to the maximum utilization of hosting in the nation's smallest towns and villages and throughout the countryside. We are not in a position to assess the technical feasibility of a plan based on constraints such as these, but it is our view that the retargeting arguments would be effectively counteracted by such planning--and, indeed, the survivability of our population objectively increased (against any level of attack).

15. The shift from low expenditures (say, the current $90 million) to expenditures increased by a factor, say, 2.5 (to, perhaps, $225 million per annum) will be the source of unacceptability. It will "signal" to our people that the world has become more dangerous and that, perhaps, a nuclear war is more likely (than they may have thought).

a. An expenditure of $225 million per year amounts to roughly $1 per person.

b. Our people have thought that we are spending 7 times on Civil Defense what we actually have been spending, and that we should be spending 14 times as much as we have been (or 2 times as much as our people believe we have been actually spending). There are ample survey data to support this response.

16. CRP (as well as other Civil Defense programs) may not be desirable because we might, in the event of a war, end up with too many survivors (relative to remaining resource base and reconstruction possibilities). This is not an argument likely to be made public but it has been made within Government, if only by very few people.

a. We would prefer to save the maximum number of our people, insure the maximum continuity of our organizations, institutions, culture and of our way of life. Unless we would want to protect our people, our institutions, our culture and our life styles (that is, the quality of American life), we would be unlikely to go to war in the first place.

b. The argument is contrary to the letter and intent of the Congressional (and, of course, Administration) mandate to "protect life and property" against the hazards of nuclear war.

c. It is the kind of "in-house" argument that, if publicized, would raise the wrath of our people against any Government or its employees and technicians who have such a low valuation of the importance of the dignity and worthwhileness of lives of Americans, their families, their institutions and their culture.

d. Yet, we recognize the dilemma: maximization of survival in attack environment may well be at partial odds, or at odds over some definable ranges of magnitudes, with maximization of long-range survival and/or with maximization of the nation's recovery potential. The nation's traditional value system, however, favors the emphasis on maximum population survival as the highest priority.

V. A CONCLUDING REMARK

We have no way to predict what the world will be like in the next ten years or so. Our estimates might prove reasonable, but they are not an aspect of our current assignment.

We have no way to anticipate how the Secretary of Defense or the President might act with respect to issues of defense in general, or with regard to Civil Defense (against thermonuclear war) in particular. Again, we have reasonable estimates but they are irrelevant for the task at hand.

However, we conclude that Crisis Relocation Programs--given some of the qualifications as to program features which we have identified herein--can be workable and credible to our people.

We have not sought to second-guess the credibility of such efforts to the President: the President, indeed, can (and will) make such determinations. We have not sought to second-guess the credibility of CRP processes to the Secretary of Defense; the Secretary can (and will) make appropriate decisions.

We have not dealt with Congressional responses; but given Administration plans and decisive support of such plans, we have no historical reason to believe that Congress would not deal with such issues responsibly and forcefully (and, indeed, rather expertly). Congress may not adopt a specific program; it may well take its time before adopting any program; it may well modify its basic parameters (or costs). Yet, Congress will act in the nation's interests.

The Administration's future programs of Civil Defense, too, will be in the national interest. Our remarks, finally, are also stated in support of what we believe to be in the national interest and within the realm of possibilities.

We hope that a viable program to "protect life and property" against the hazards of nuclear war, the initial mandate by the United States Congress of 1950, can result out of the interplay of the various forces which bear upon the nation's destiny.

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CANDIDATE U. S. CIVIL DEFENSE PROGRAMS.(U)
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Seattle, Washington 98124
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